

# SHIMANO

**2020-2021**

## **Products Technical Information**

- **Frame Requirement**
- **Product Information**
- **Electronic Product Information**
- **E-BIKE Components**
- **Compatibility**
- **Technical Notes**
- **Update History**

All information in this Products Technical Information is confidential and has been given to you for the sole use of your product development staff. **After the assembly of SHIMANO components, the bicycle manufacturer should fully check the performance of the bicycle.**

This information should not be photo copied.  
Specifications are subject to change without prior notice.

**Visit SHIMANO PRODUCT WEBSITE for the latest information.**

# Word definitions

<b>Line D</b>	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.		
<b>BB</b>	Bottom bracket	<b>HP</b>	Head parts
<b>BC</b>	Brake cable	<b>HRB</b>	Hub roller brake
<b>BCC</b>	Charger cord	<b>I-SPEC</b>	Integration mounting system of brake and shifting lever
<b>BCR</b>	Battery charger		
<b>BH</b>	Disc brake hose	<b>ID</b>	CI-DECK
<b>BL</b>	Brake lever	<b>JC</b>	Junction
<b>BM</b>	Battery mount	<b>LP</b>	Light
<b>BR</b>	Brake caliper	<b>MF</b>	Multiple freewheel
<b>BTC</b>	Battery case	<b>MU</b>	Motor unit
<b>BTH</b>	Battery holder	<b>O.L.D.</b>	Over Locknut Dimension
<b>BTR</b>	Battery	<b>OT</b>	Outer casing
<b>CB</b>	Coaster brake	<b>P.C.D.</b>	Pitch Circle Diameter
<b>CD</b>	Chain device	<b>PCE</b>	PC Linkage device
<b>CG</b>	Chain guard	<b>PD</b>	Pedal
<b>CJ</b>	Cassette joint	<b>PM</b>	POWER MODULATOR
<b>CN</b>	Chain	<b>QR</b>	Quick release
<b>CP</b>	Spoke protector	<b>RD</b>	Rear derailleur
<b>CR</b>	Chainring	<b>RT</b>	Disc brake rotor
<b>CS</b>	Cassette sprocket	<b>RTAD</b>	Disc brake rotor adapter
<b>CT</b>	Chain tensioner	<b>SB</b>	REVOSHIFT shifter integrated with brake lever
<b>DH</b>	Hub dynamo		
<b>DU</b>	Drive unit	<b>SC</b>	Cycle computer System information display
<b>EC</b>	Battery charger		
<b>EW</b>	Electric wire	<b>SF</b>	Single freewheel
<b>EWC</b>	Cord cover	<b>SG</b>	Internal geared hub
<b>EWEX</b>	DI2 adapter	<b>SL</b>	Shifting lever
<b>EWV</b>	Wireless unit	<b>SPD</b>	SHIMANO PEDALING DYNAMICS
<b>FC</b>	Crankset Crankarm	<b>SPD-SL</b>	SHIMANO PEDALING DYNAMICS-SL
		<b>ST</b>	DUAL CONTROL LEVER / shifting lever integrated with brake lever
<b>FD</b>	Front derailleur	<b>SW</b>	Switch unit
<b>FH</b>	FREEHUB	<b>WH</b>	Wheel
<b>GM</b>	Grommet		
<b>HB</b>	Front hub		

# Frame Requirement

## Bottom bracket C-001

Sealed cartridge type C-002

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Cartridge type bottom bracket dimensions C-515

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Press-Fit type C-003 C-513 C-004 C-005 C-514

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Bottom bracket mount type [MTB]	<a href="#">C-052</a>
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Down Swing type [MTB]	<a href="#">C-054</a>
Down Swing type SEIS spec.[MTB]	<a href="#">C-055</a>
SIDE SWING type [MTB]	<a href="#">C-056</a>
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## Technical Notes

si.shimano.com C-474

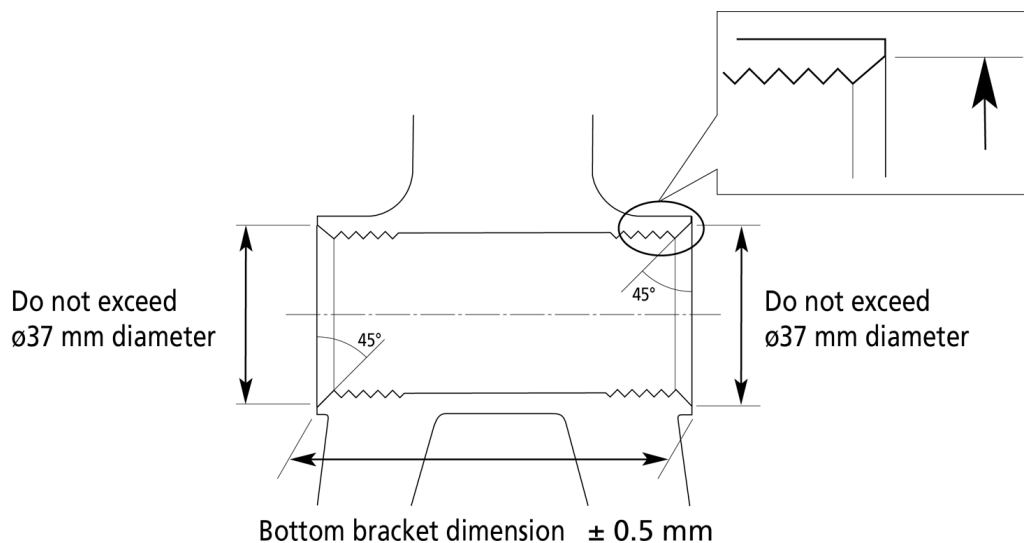
User's manual / Dealer's manual

C-475

## 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.

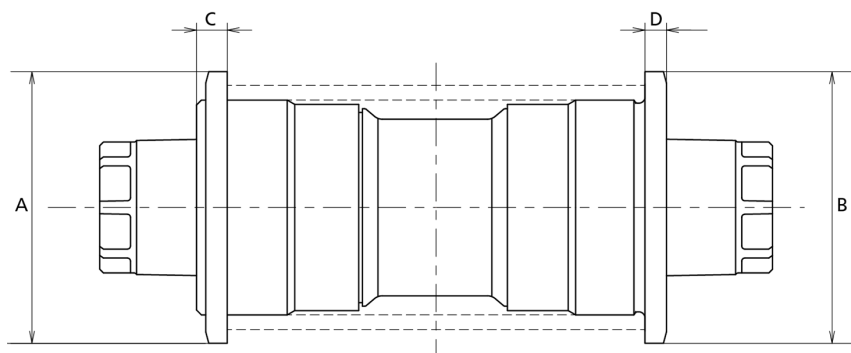


## Cartridge type bottom bracket dimensions

C-515

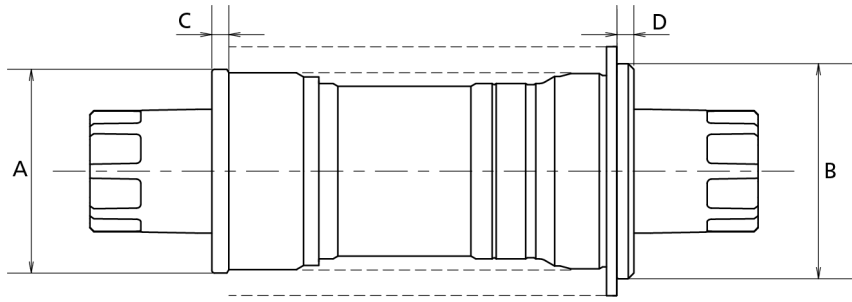
- A: Outer diameter of left hand adapter
- B: Outer diameter of right hand adapter 1
- C: Protrusion of left hand adapter when bottom bracket assembled on frame bottom bracket hanger
- D: Protrusion of right hand adapter when bottom bracket assembled on frame bottom bracket hanger
- E: Outer diameter of right hand adapter 2 ([BB-UN101](#) / [BB-UN300](#))
- G: Flat area of protrusion of right hand adapter when bottom bracket assembled on frame bottom bracket hanger
- T: Chain case stay / E-type plate thickness

### BB-7700



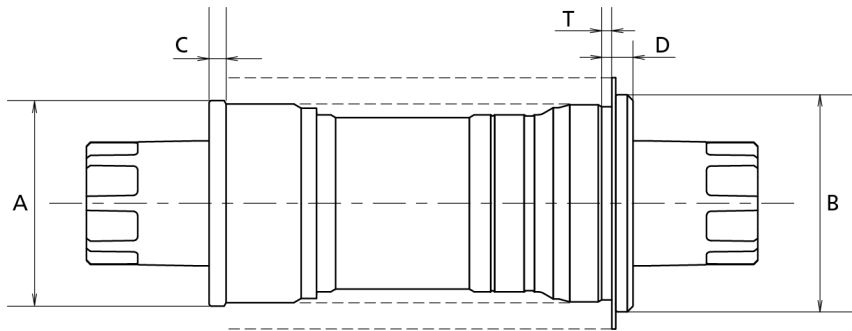
Model No.	Spindle type	Structure type	Axle length (mm)	Shell width (mm)	A (mm)	B (mm)	C (mm)	D (mm)
BB-7700	OCTALINK	Standard	109.5	68 (BC1.37)	$\varnothing 44$	$\varnothing 44$	5	3.5
				70 (M36)			4	
				68 (BC1.37)			$\varnothing 38$	2.5

**BB-5500 / BB-ES51 / BB-ES300**



Model No.	Spindle type	Structure type	Axle length (mm)	Shell width (mm)	A (mm)	B (mm)	C (mm)	D (mm)				
BB-5500	OCTALINK	Standard	109.5	68 (BC1.37)	ø39.8	ø37.8	3.6	3.1				
				70 (M36)								
			118.5	68 (BC1.37)								
70 (M36)												
129			73 (BC1.37)									
BB-ES51			OCTALINK	Standard					113	68 (BC1.37)	ø36.1	ø37.8
					73 (BC1.37)							
					118	68 (BC1.37)						
73 (BC1.37)												
121					68 (BC1.37)							
BB-ES300					OCTALINK	Standard	126	70 (M36)	ø36.1	ø37.8		
								68 (BC1.37)				
	113	68 (BC1.37)										
		70 (M36)										
	118	68 (BC1.37)										
		73 (BC1.37)										
121	68 (BC1.37)											
126	68 (BC1.37)											
				73 (BC1.37)								

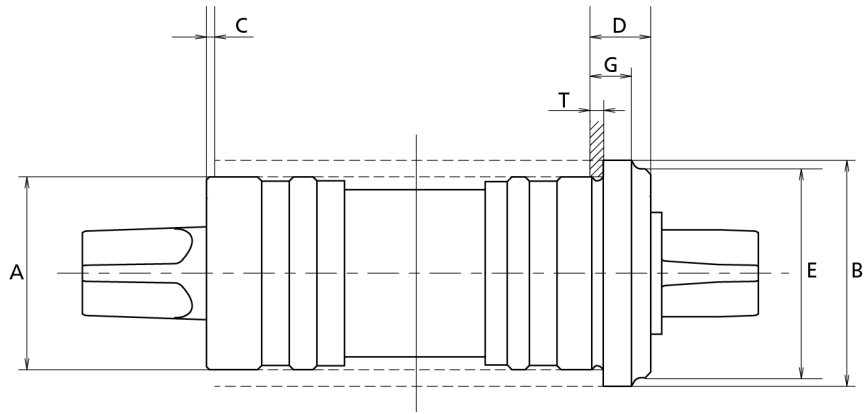
**BB-ES300-E / BB-ES300-K**



Model No.	Spindle type	Structure type	Axle length (mm)	Shell width (mm)	A (mm)	B (mm)	C (mm)	D (mm)	T (mm)	
BB-ES300-E	OCTALINK	E-type	113	68 (BC1.37)	ø36.1	ø37.8	3.8	5.65	2.5	
				118						
			121	68 (BC1.37)						
				73 (BC1.37)						
			126	68 (BC1.37)						
				73 (BC1.37)						
BB-ES300-K		OCTALINK	For chain case	121	68 (BC1.37)	ø36.1	ø37.8	4.75	5.2	2.1
					126			68 (BC1.37)	4.15	6

\* with 0.7mm washer

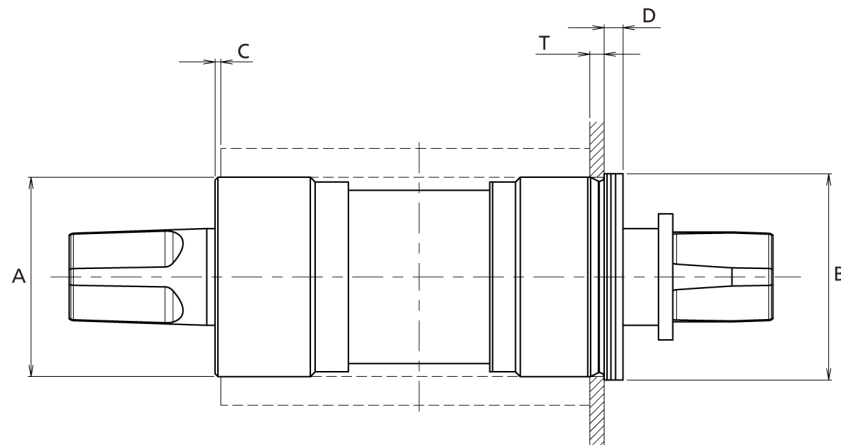
**BB-UN101 / BB-UN101-K**



Model No.	Spindle type	Structure type	Axle length (mm)	Shell width (mm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	G (mm)	T (mm)	
BB-UN101	Square	Standard	D-NL122	68 (BC1.37)	ø34.8	ø40.8	4	8.5	ø37.9	5	-	
			LL123	68 (BC1.37)			2.5					
				73 (BC1.37)			0					
BB-UN101-K		For chain case	D-NL122	68 (BC1.37)			4-T	8.5+T		5+T		≤2.5
			LL123	68 (BC1.37)			2.5	11		5		2.5*

\* with 0.7mm washer

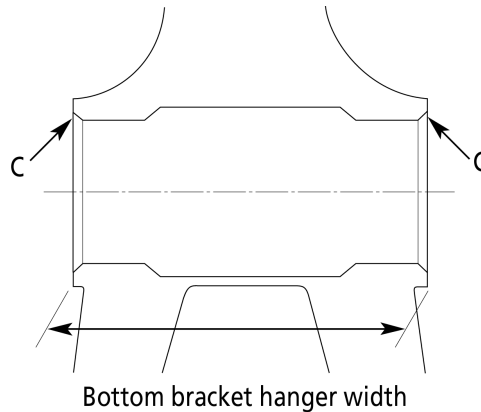
**BB-UN300 / BB-UN300-E / BB-UN300-K**



Model No.	Spindle type	Structure type	Axle length (mm)	Shell width (mm)	A (mm)	B (mm)	C (mm)	D (mm)	T (mm)
BB-UN300	Square	Standard	MM107	68 (BC1.37)	ø34.8	ø38	0	3.3	-
			MM110	69 (BC1.37)					
			LL113	68 (BC1.37)					
				73 (BC1.37)					
			D-H115	68 (BC1.37)					
			117.5	68 (BC1.37)					
			XL118	68 (BC1.37)					
				73 (BC1.37)					
			D-NL122	68 (BC1.37)					
			D-EL127	68 (BC1.37)					
73 (BC1.37)									
LL123	68 (BC1.37)								
LL123	68 (BC1.37)	ø34.8		2.5*					
BB-UN300-E	E-type	LL123	68 (BC1.37)						
BB-UN300-K	For chain case		MM110	68 (BC1.37)	ø34.8	ø38			≤2.5
			117.5						
			XL118						
			D-NL122						
			D-EL127						
			LL123						

\* with 0.7mm washer

## Frame / bottom bracket hanger C-513



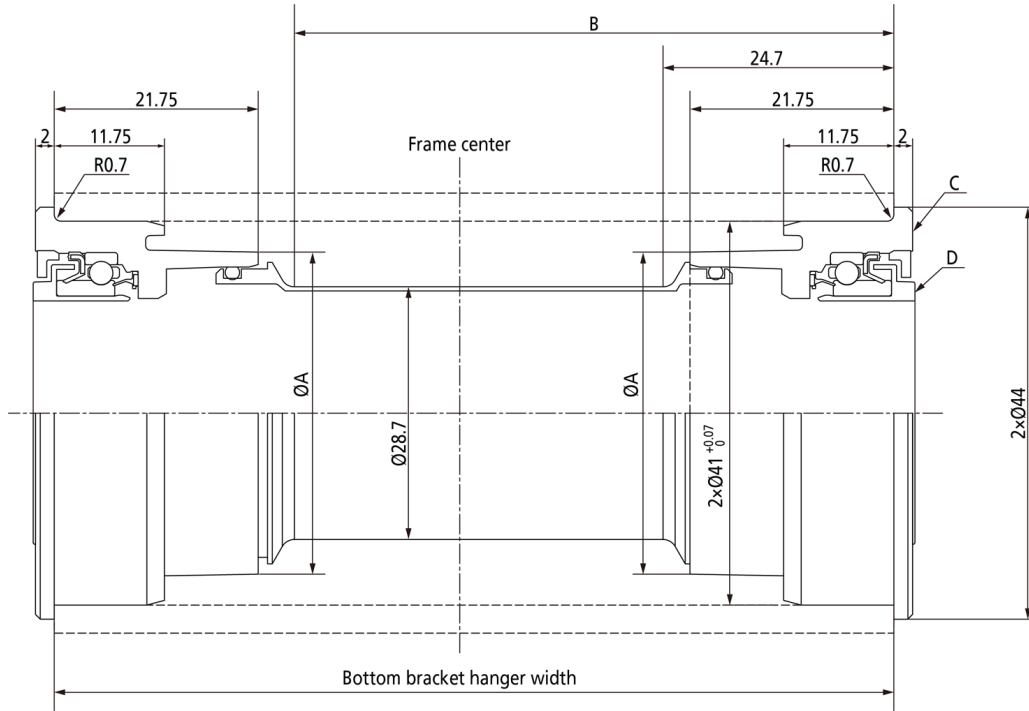
1. Due to variations in material properties and the structure of bicycle bottom bracket shells, SHIMANO does not have recommendation on the frame dimension that is the inner diameter of bottom bracket hanger. Therefore, please study and check it's quality. SHIMANO does not guarantee the fitting quality between frame and bottom bracket unit. SHIMANO guarantees the outer diameter of bottom bracket which is  $\varnothing 41.00-41.07\text{mm}$ . ( refer to [C-004](#), [C-005](#), [C-514](#) )
2. Frame bottom bracket hanger has to have chamfering at inner diameter.
3. Front derailleur E-type (w/ bottom bracket plate) can not use with Press-fit bottom bracket, due to dimension difference and also less fix torque by press in.

**NOTE**

\* 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 bottom bracket shell of the frame.

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

## Press-Fit type bottom bracket dimensions C-004

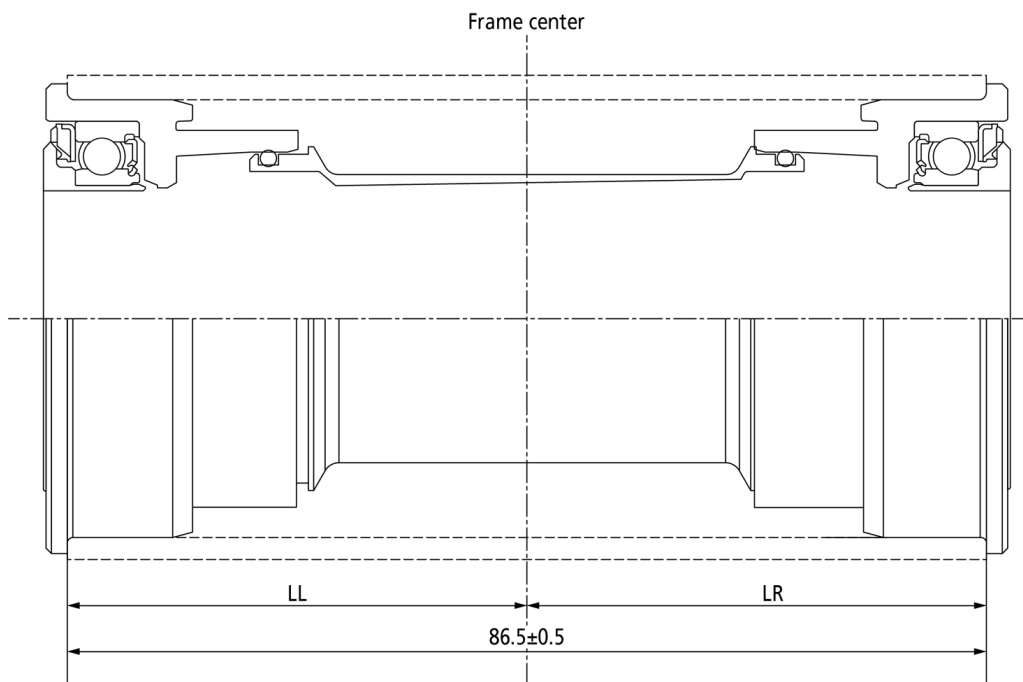


Surface D is higher than surface C (See above drawing). So, be careful not to press surface D for pressing adapter into the frame.

	Model No.	ØA	B
ROAD	SM-BB72-41B	Ø34.4	60.8
	SM-BB71-41B	Ø35.4	
	BB-RS500-PB		
MTB & Others	SM-BB94-41A	Ø34.4	65.8
	BB-MT800-PA	Ø35.4	
	SM-BB71-41A		Ø35.4
BB-MT500-PA	Ø35.4		
	SM-BB71-41C	Ø35.4	80.8
	BB-MT800-PC		

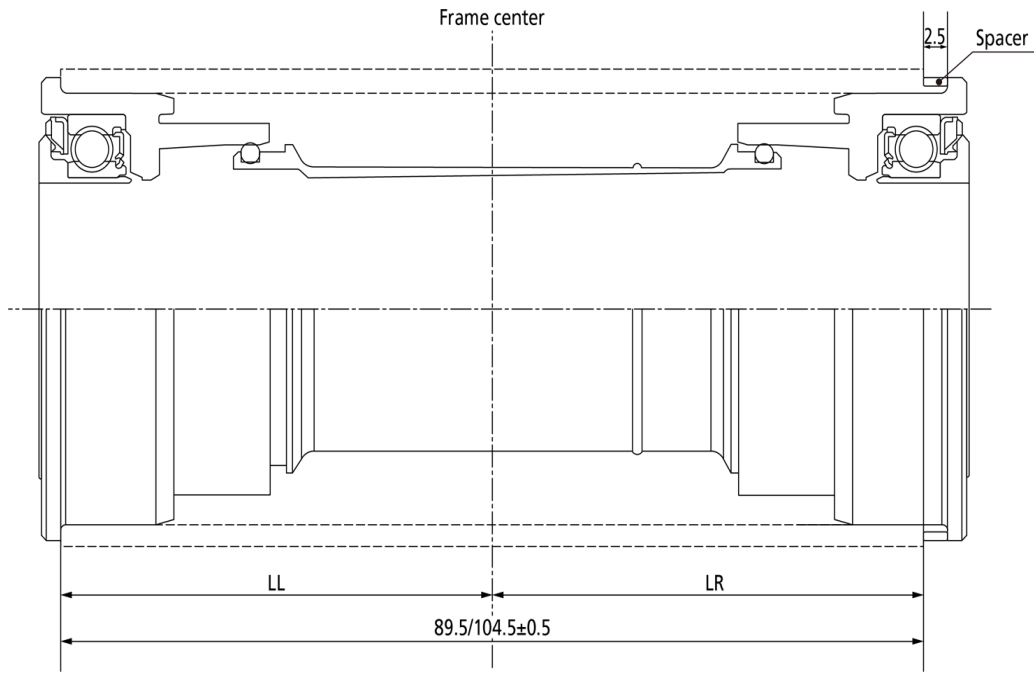
## Press-Fit type Assemble dimensions [ROAD] C-005

### Symmetric frame

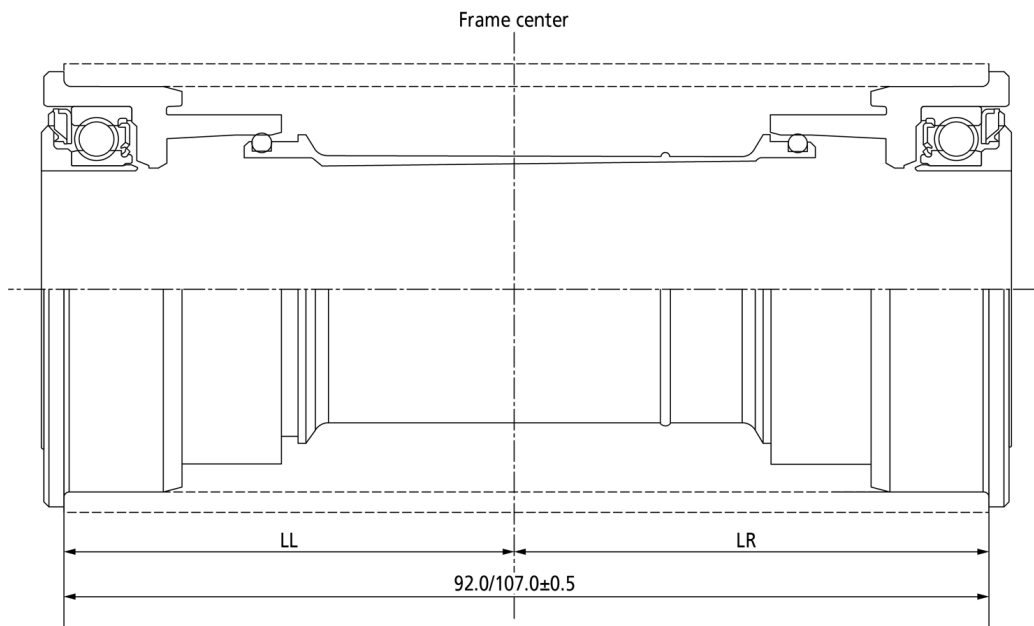


# Press-Fit type Assemble dimensions [MTB, OTHERS] C-514

## Symmetric frame



## Asymmetric frame



	Model No.	Frame (Bottom Bracket hanger)			Spacer (2.5mm)	LL (mm)	LR (mm)
		Width (mm)	Symmetric	Asymmetric			
ROAD	SM-BB72-41B SM-BB71-41B BB-RS500-PB	86.5	✓	-	-	43.25	
MTB & Others	SM-BB94-41A BB-MT800-PA	89.5	✓	-	✓	44.75	
	SM-BB71-41A BB-MT500-PA	92	-	✓	-	44.75	47.25
	SM-BB71-41C	104.5*	✓	-	✓	52.25	
		107	-	✓	-	52.25	54.75

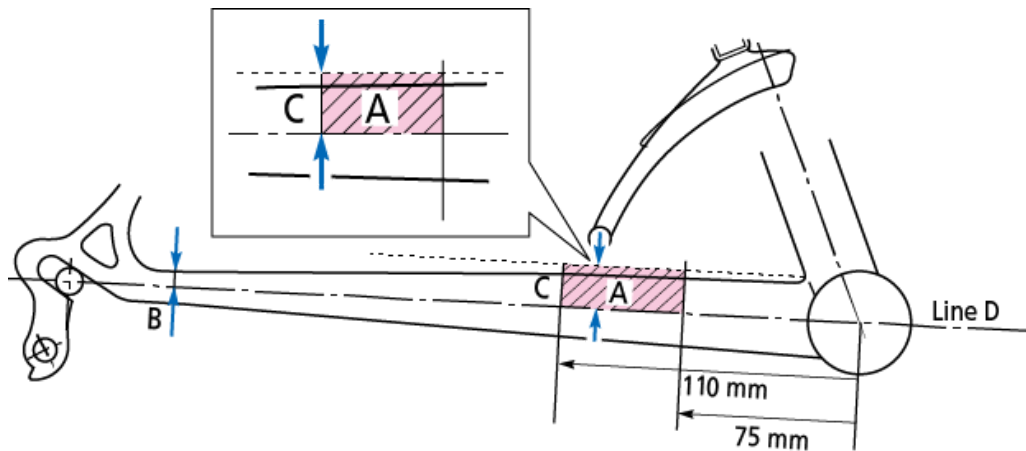
\* For FC-M825 w/SM-BB71-41C



## Chainstay dimensions

C-008

Dimensions B and C are general value for reference.  
Please check each product for detail.



### Dimension B C-009

$B \leq 7 \text{ mm}$

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, Gravel/Adventure] C-010

$C \leq 15 \text{ mm}$

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](#).

## Interference between chainstay and rear derailleur [Gravel/Adventure]

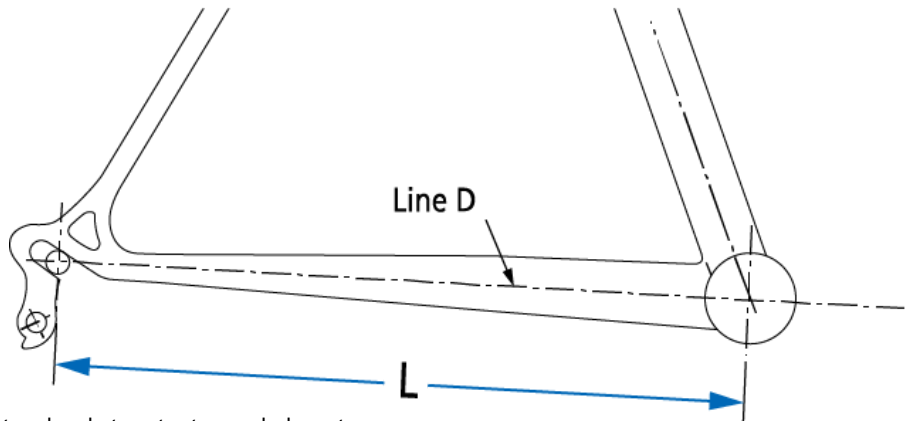
C-597

**RD-RX810 / RD-RX812 / RD-RX815 / RD-RX817 / RD-RX400**

Refer to interference check 3D data.

# 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

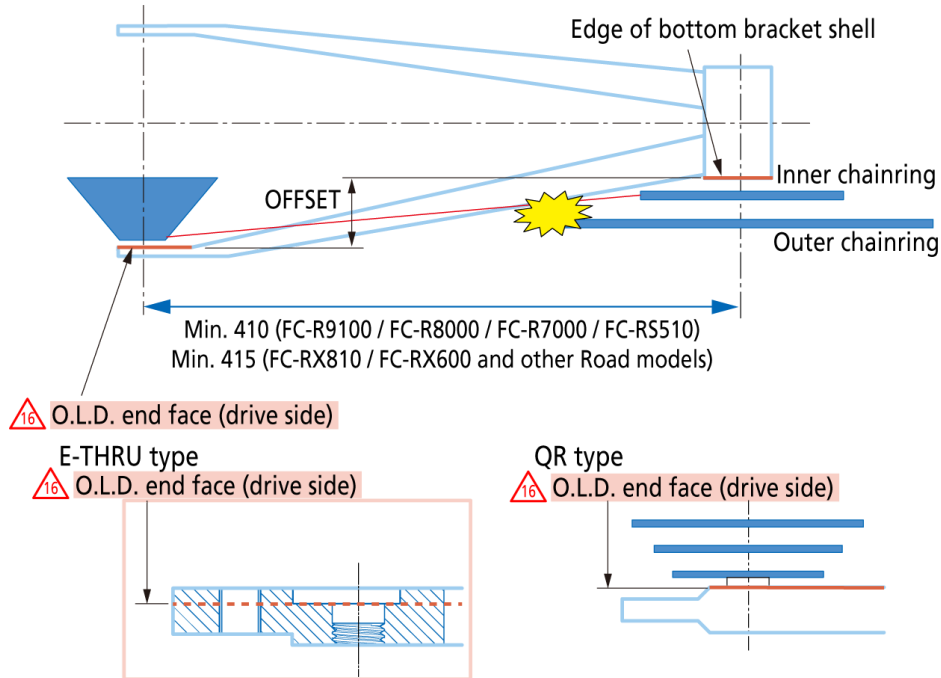
- For ROAD 2x, 3x drivetrain products with 135 / 142 mm O.L.D. frames, refer to [C-014](#), [C-015](#)
- For SHIMANO STEPS, chainstay length requirement is depending on the rear drive train. For example, in case of MTB specification (MTB rear derailleur spec.), chainstay length  $L \geq 420$ . In case of urban specification (internal geared hub spec.),  $L \geq 460$ .

Drivetrain component type	Rear speed	Dimension (mm)
MTB	12, 11, 10, 9, 8, 7, 6-speed	$L \geq 420$
TOURNEY	Triple (Front speeds)	$L \geq 430$
TOURNEY	Single	$L \geq 405$
Trekking	10, 9, 8, 7, 6-speed	$L \geq 450$
ROAD	11, 10, 9, 8, 7-speed	$L \geq 405$
Gravel/Adventure	11, 10-speed	$L \geq 415$
Cyclocross	11, 10-speed	$L \geq 425$

## Inner/Top [ROAD, Gravel/Adventure] C-014



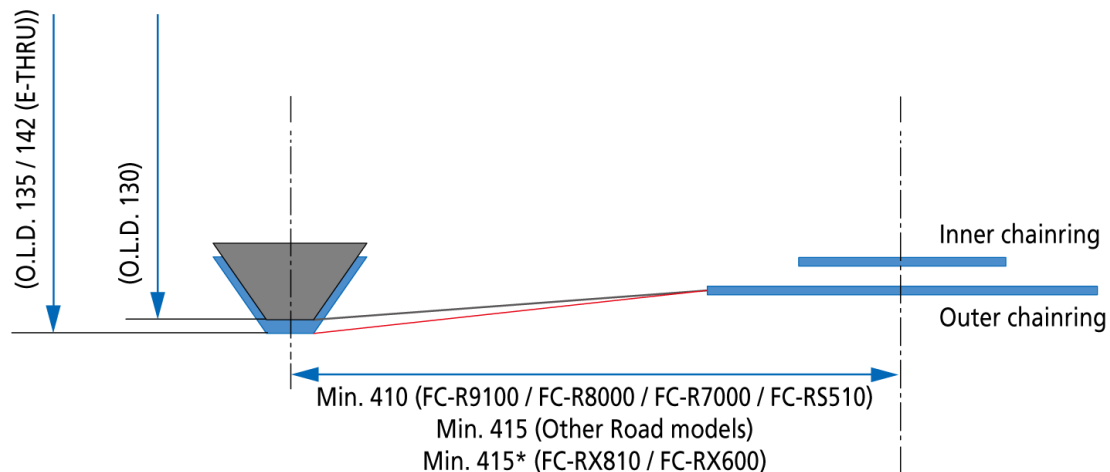
It is related O.L.D. 135 mm / 142 mm (E-THRU) ROAD, Cyclocross and Gravel/Adventure, set the maximum dimension from edge of bottom bracket shell to O.L.D. end face (drive side) as shown in the table below. When the chain is on the front inner chainring x top position of cassette sprocket, reduced clearance between chain and leading teeth might cause chain to spontaneously shift to outer chainring, which may lead to loss of control of bicycle.



	Bottom bracket width (mm)	OFFSET (mm) (MAX)	
		Quick release Type	E-TURU Type
BC	68	35	38.5
ITALIAN	70	34	37.5
Press-Fit	86.5	25.75	29.25

## Outer/Top [ROAD, Gravel/Adventure] C-015

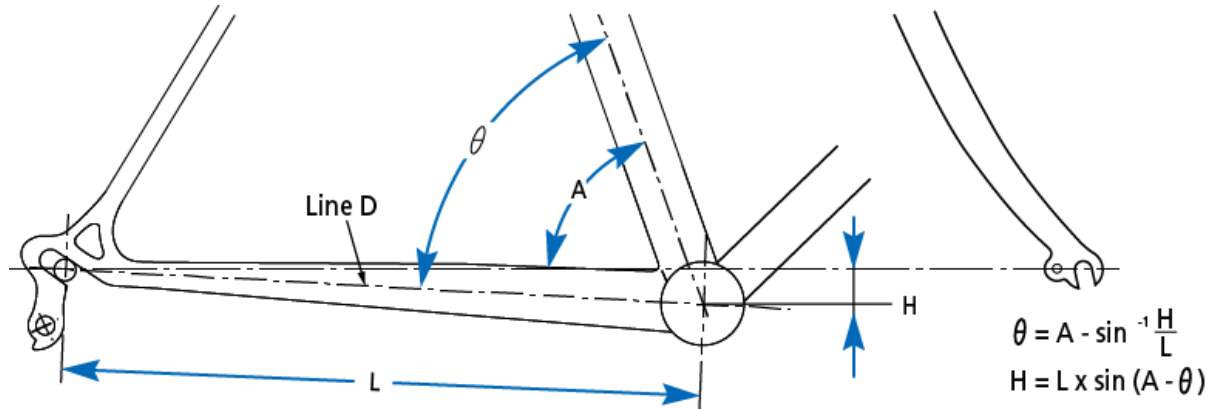
With the chain on the front outer chainring x top position of cassette sprocket. Test to make sure chain does not drop from outer chainring by physically testing. (Increased chain angle might cause the chain to drop off of the outer chainring under very high pedaling loads, which may lead to loss of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



\* Only for O.L.D 135 / 142 mm.

# Chainstay angle

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

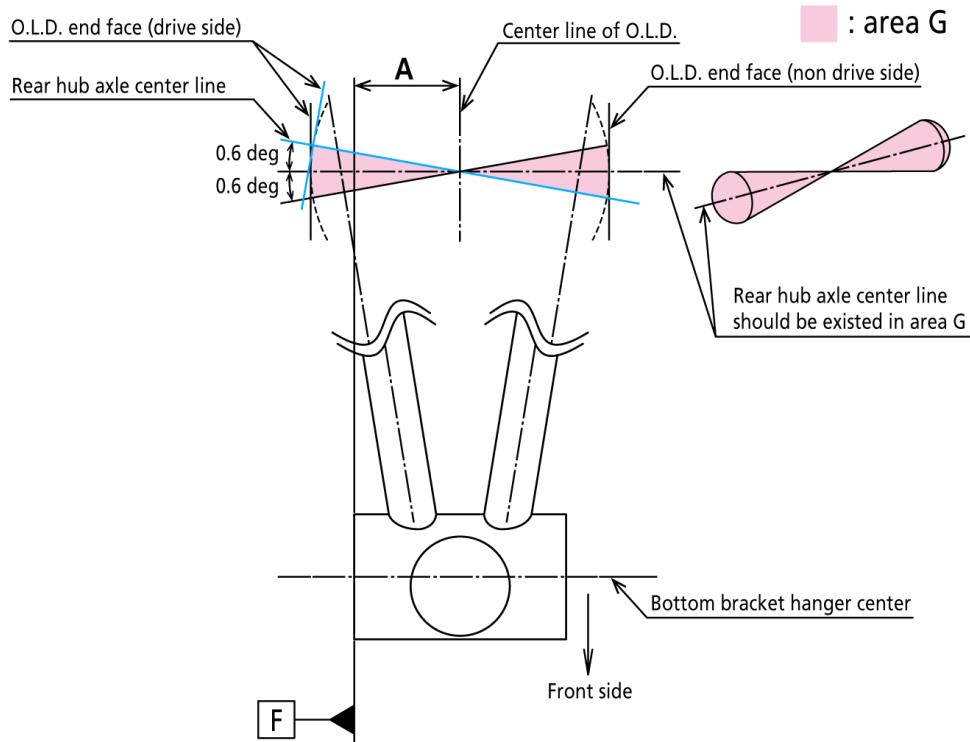


$\theta$ : Chainstay angle (FD mount angle)  
 A: Seat tube angle  
 H: Hanger drop

**NOTE**  
 Please refer to specification of the front derailleur on Spec Hand Book for chainstay angle information.  
 In the case of full-suspension bikes, in the SAG position, set the angle  $\theta$  within the recommended range.

# Bottom bracket and rear hub related dimensions

Limitation of center line of O.L.D. and rear hub axle center for road frame.



A: Dimension for right surface of bottom bracket shell and center of O.L.D.

		BB width (mm)	A ± 1.5 (mm)
ROAD	BC	68.0	34.0
	ITALIAN	70.0	35.0
	Press-Fit 86.5	86.5	43.25

## Band type **C-627**

### Recommended chainstay and seat tube diameter

For FD-R9100-B / FD-R9150 (+ SM-AD91) / FD-R7000-B / FD-R2000-B / FD-R2030-B / FD-R3000-B /  
FD-R3030-B / FD-M9100-M / FD-M8100-M / FD-M7100-M / FD-M6000-L/M/H / [FD-M5100-M](#) /  
[FD-M4100-M](#) / [FD-M3120-M](#) / FD-M617-L/H / FD-R8000-B

S :  $\varnothing 28.6 +0.4/-0.1$  ( $\varnothing 28.5 - 29.0$ )

M :  $\varnothing 31.8 +0.4/-0.1$  ( $\varnothing 31.7 - 32.2$ )

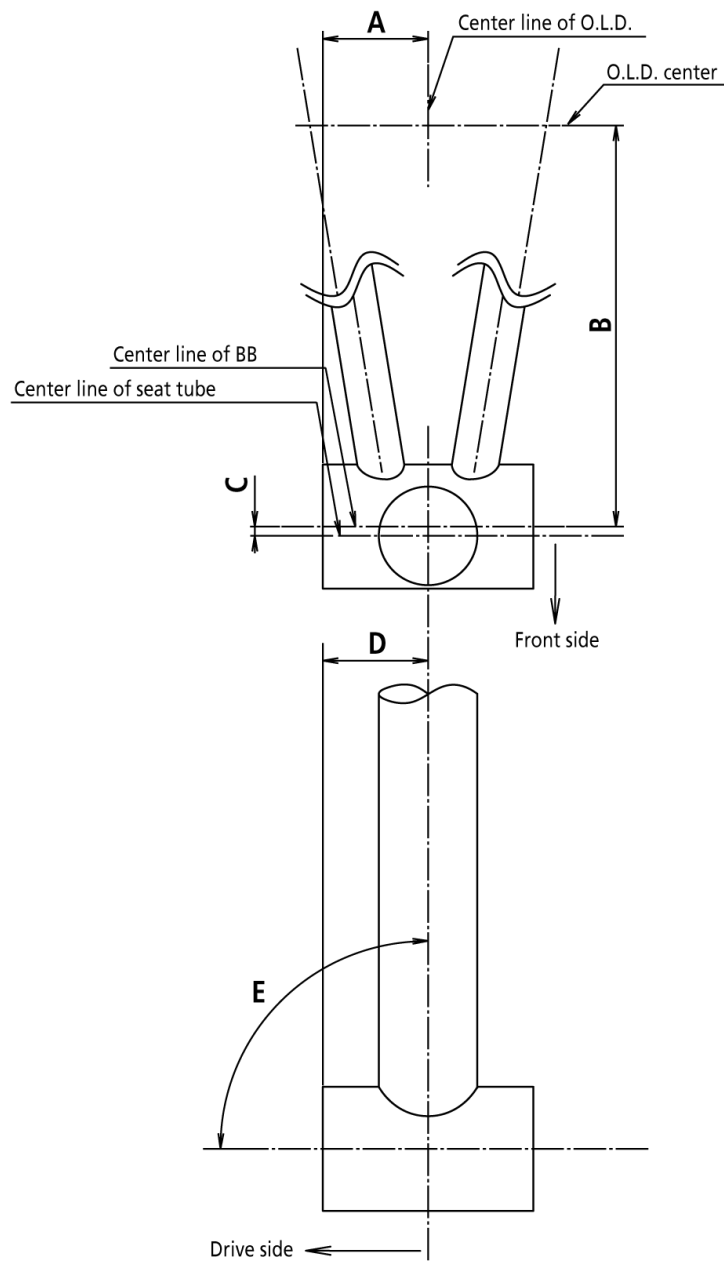
L :  $\varnothing 34.9 +0.4/-0.1$  ( $\varnothing 34.8 - 35.3$ )

### For other new and conventional FD

S :  $\varnothing 28.6 +0.2/-0.3$  ( $\varnothing 28.3 - 28.8$ )

M :  $\varnothing 31.8 +0.2/-0.3$  ( $\varnothing 31.5 - 32.0$ )

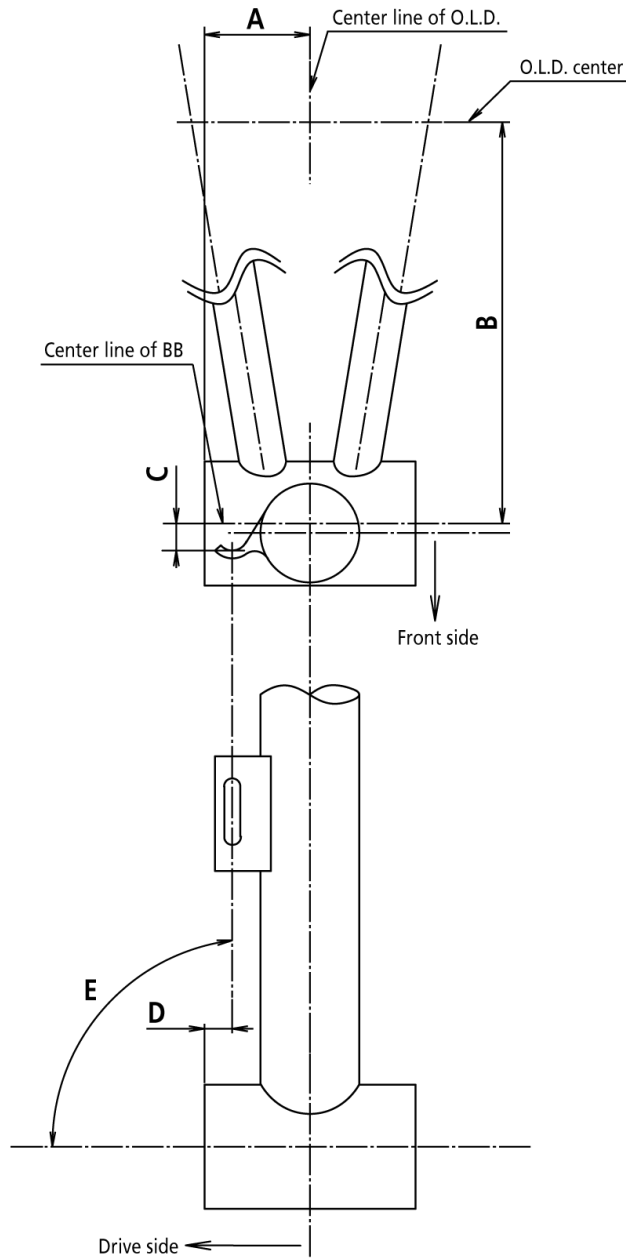
L :  $\varnothing 34.9 +0.2/-0.3$  ( $\varnothing 34.6 - 35.1$ )



- A: Dimension for right surface of bottom bracket shell and center of O.L.D.  
 B: Dimension for bottom bracket center and FREEHUB center (chainstay length)  
 C: Dimension for seat tube center and bottom bracket center  
 D: Dimension for seat tube center and right surface of bottom bracket shell  
 E : Angle between seat tube center and bottom bracket 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	Refer to <a href="#">C-013</a> , <a href="#">C-014</a> , <a href="#">C-015</a>	0	34.0	90°	
	BC73	73.0	36.5		0	36.5	90°	
	BC83	83.0	41.5		0	41.5	90°	
	Press-Fit 92	92.0	47.25		0	47.25	90°	SM-BB94-41A SM-BB71-41A BB-MT800-PA BB-MT500-PA
	Press-Fit 89.5	89.5	44.75		0	44.75	90°	SM-BB94-41A SM-BB71-41A BB-MT800-PA BB-MT500-PA
ROAD	BC	68.0	34.0	0	34.0	90°		
	ITALIAN	70.0	35.0	0	35.0	90°		
	Press-Fit 86.5	86.5	43.25	0	43.25	90°	SM-BB71-41B SM-BB72-41B BB-RS500-PB SM-BB92-41B	

# Brazed-on type C-045



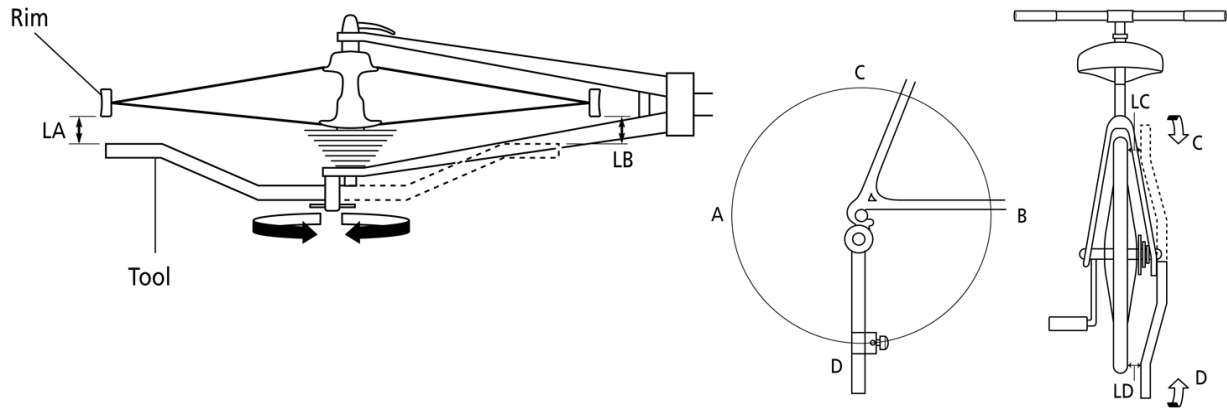
- A: Dimension for right surface of bottom bracket shell and center of O.L.D.
- B: Dimension for bottom bracket center and FREEHUB center (chainstay length)
- C: Dimension for brazed-on boss
- D: Dimension for brazed-on boss
- E: Angle between brazed-on boss

	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	Refer to <a href="#">C-013</a> , <a href="#">C-014</a> , <a href="#">C-015</a>	8.7	9.0	90°	
ITALIAN	70.0	35.0		8.7	10.0	90°	
Press-Fit 86.5	86.5	43.25		8.7	18.25	90°	SM-BB92-41B SM-BB72-41B SM-BB71-41B BB-R5500-PB

## Rear dropout dimensions

C-018

Rear dropout alignment is set in relation to the frame centerline. To check alignment of the rear dropout, use the tool.

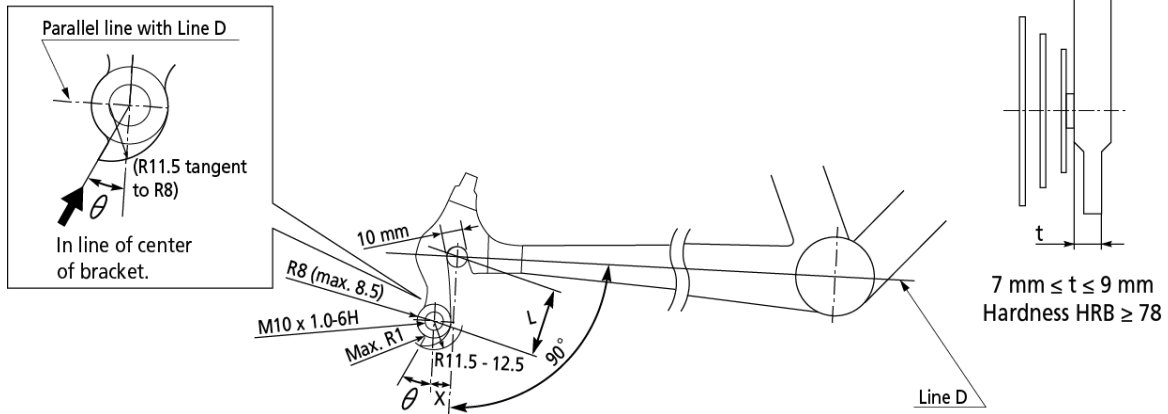


Adjust the rear dropout so that  
 $|LA-LB|$  and  $|LC-LD| \leq 10$  mm  
 $|LA-LB|$  and  $|LC-LD| = 0$  mm is optimum setting

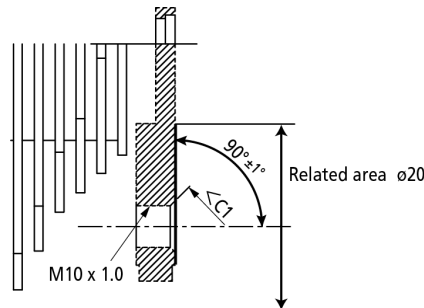


## Rear dropout (with derailleur hanger) C-020

In order to maintain optimum shifting performance of SHIMANO INDEX SYSTEM, set dimensions as shown below.



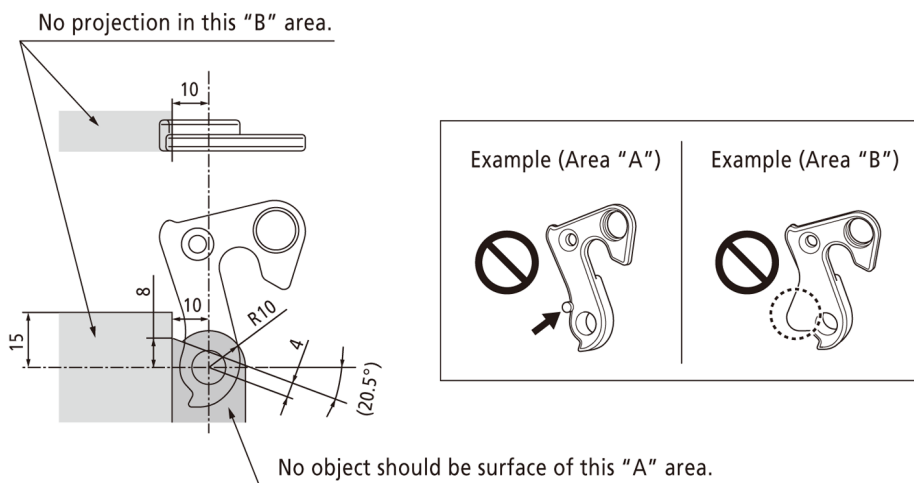
Rear dropout type	L (mm)	X (mm)	Angle $\theta$
MTB recommendation	28 to 30	6 to 10	25° to 30°



This information also applies all rear dropouts.

**NOTE**  
If a rear dropout that does not conform to the dimensions above is used, optimum shifting performance of SHIMANO INDEX SYSTEM may not be obtained.

## Rear dropout (with derailleur hanger) for SHIMANO SHADOW RD C-495



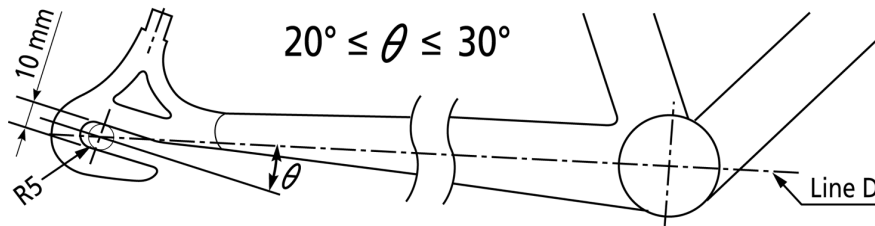
These dimension must be maintained to prevent contact between the rear dropout surface and rear derailleur.

## Rear dropout (without derailleur hanger) C-021

In order to maintain optimum shifting performance of SHIMANO INDEX SYSTEM, Set dimensions as shown in below.

QR can not be used for rear dropout (without derailleur hanger).

### RD bracket type



Thickness:  $4\text{mm} < t < 5\text{mm}$   
Hardness (Over locknut contact portion):  $\text{HRB} \geq 65$

### Reversed type, RD bracket type



Thickness:  $4\text{mm} < t < 5\text{mm}$   
Hardness (Over locknut contact portion):  $\text{HRB} \geq 65$

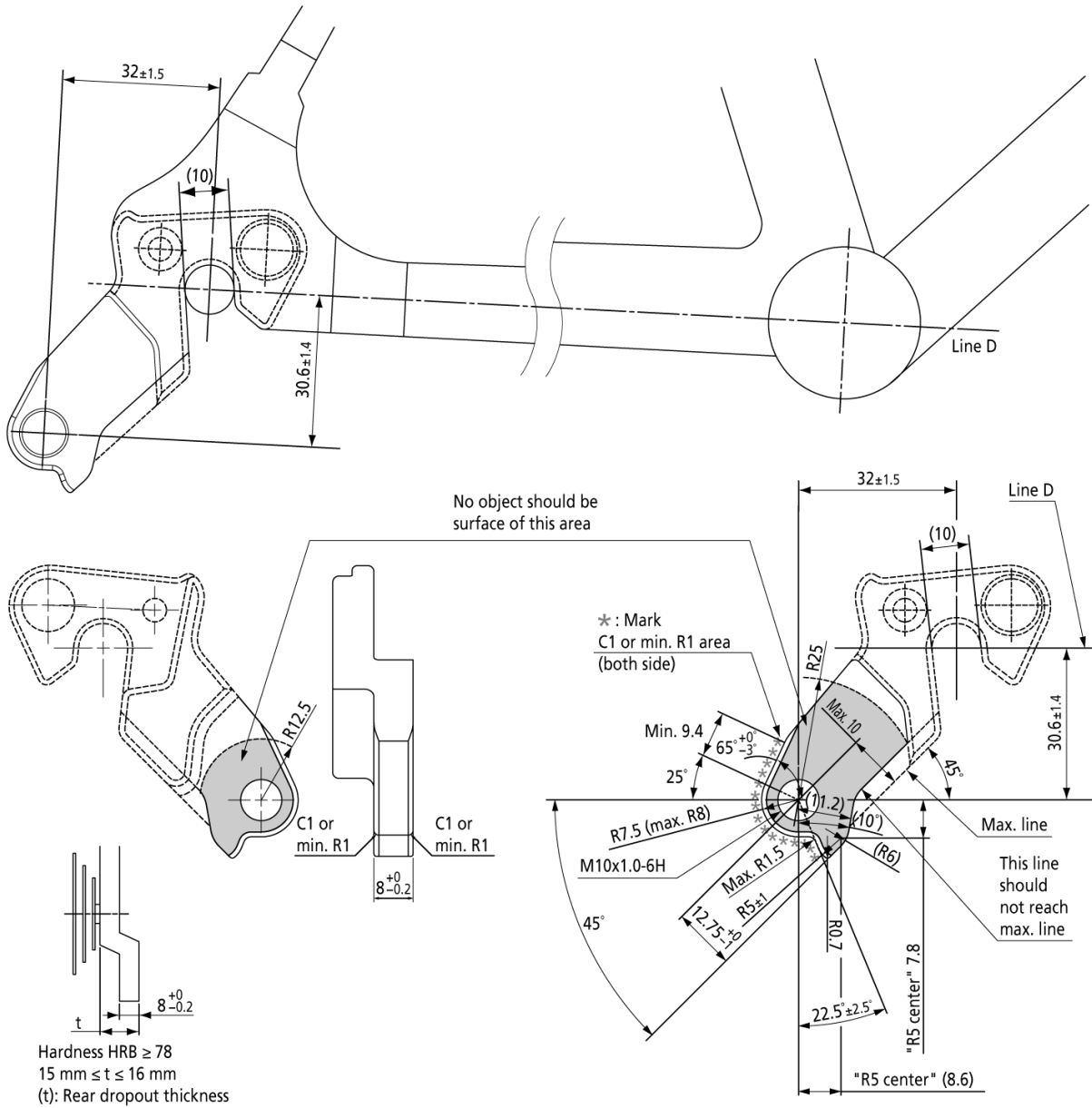
Make sure rear dropout should not be deformed during assembly and transportation. Less stiff rear dropout may deform and cause bad shifting performance.

# Direct mount rear dropout dimensions C-022

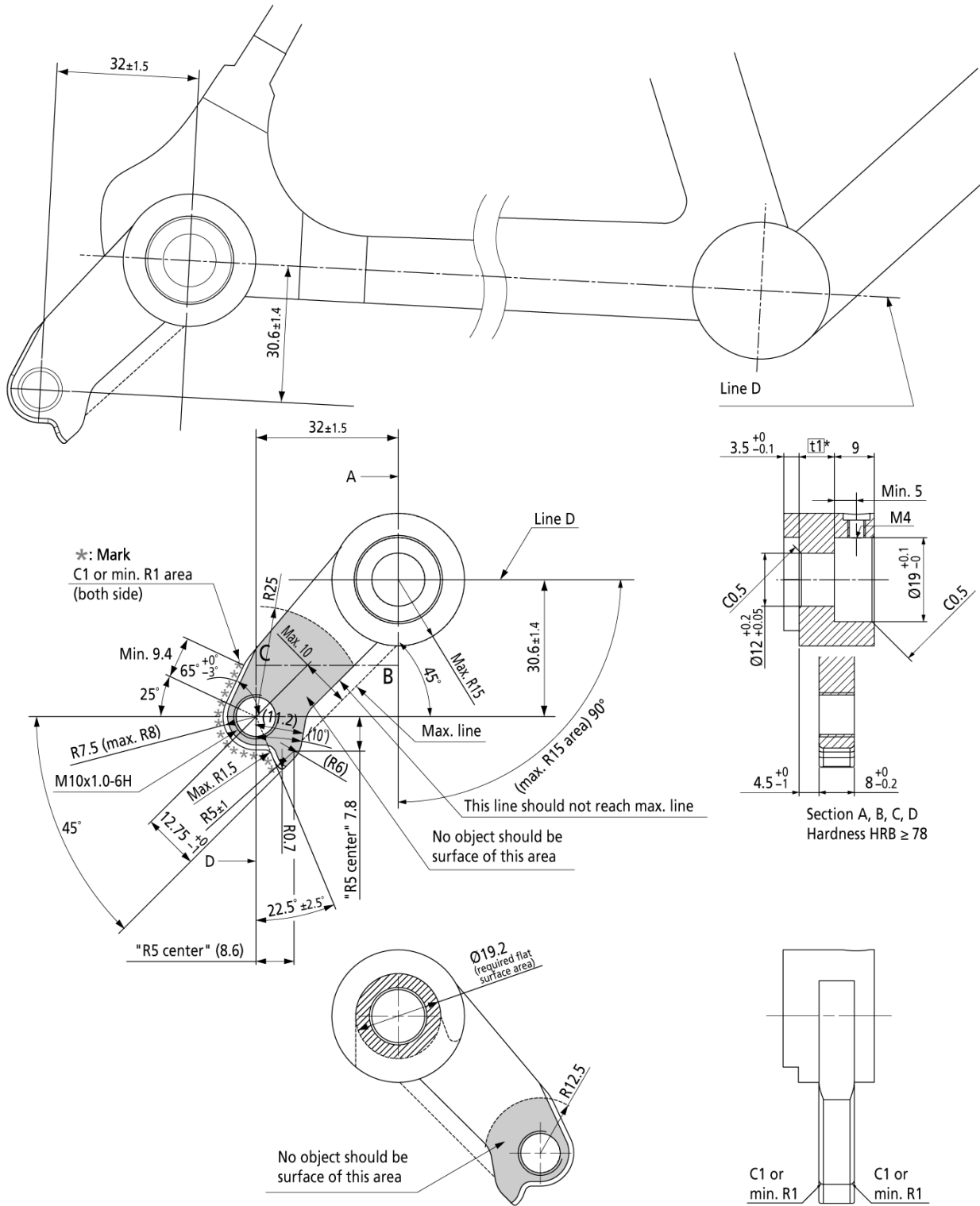
Dimensions for wide ratio cassette sprocket (Low gear bigger than 32T)

RD-M820 / RD-M8000 / RD-M8050 / RD-M7000-10 / RD-M670 / RD-M610 / RD-M5120 / RD-M4120 / RD-M2000

QR type



**E-THRU type (O.L.D. 142 mm / 148 mm)**



\* Please refer to [C-025](#) for more rear E-THRU system information.

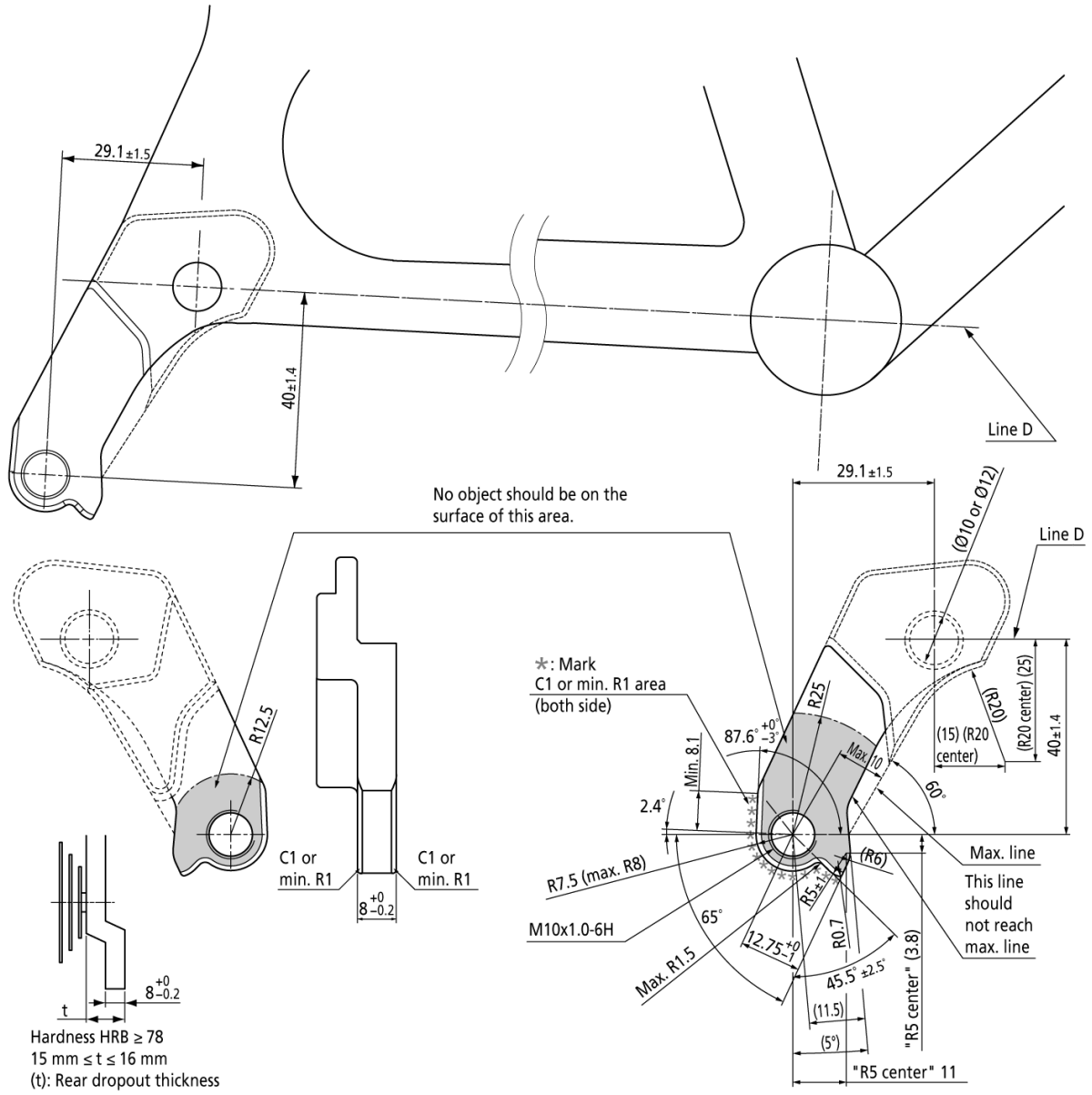
# Dimensions for close ratio cassette sprocket (Low gear smaller than 32T)

## RD-M820

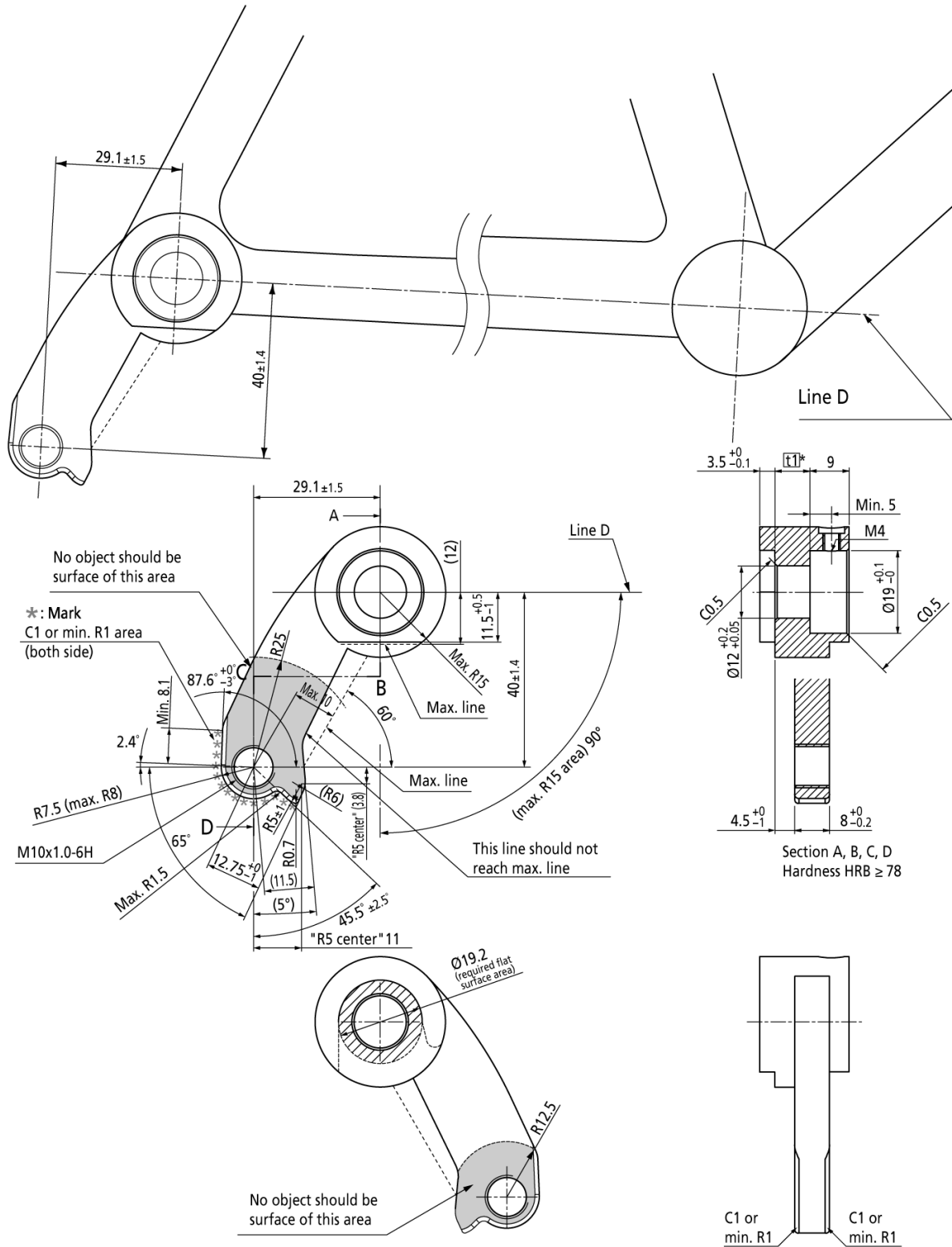
Please refer to [C-175](#) for more information.

**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)



**E-THRU type (O.L.D. 142mm / 148mm)**



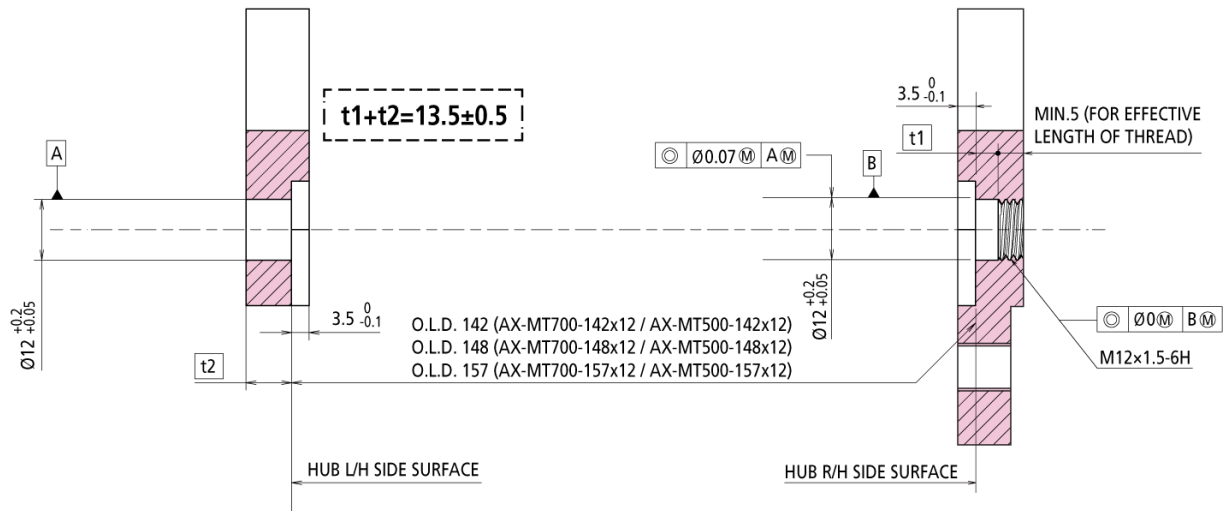
\* Please refer to [C-025](#) for more rear E-THRU system information.

## E-THRU system C-025

AX-MT700-142x12 / AX-MT500-142x12 / SM-AX78 / SM-AX58 (O.L.D. 142mm)

AX-MT700-148x12 / AX-MT500-148x12 / SM-AX78-B / SM-AX58-B (O.L.D. 148mm)

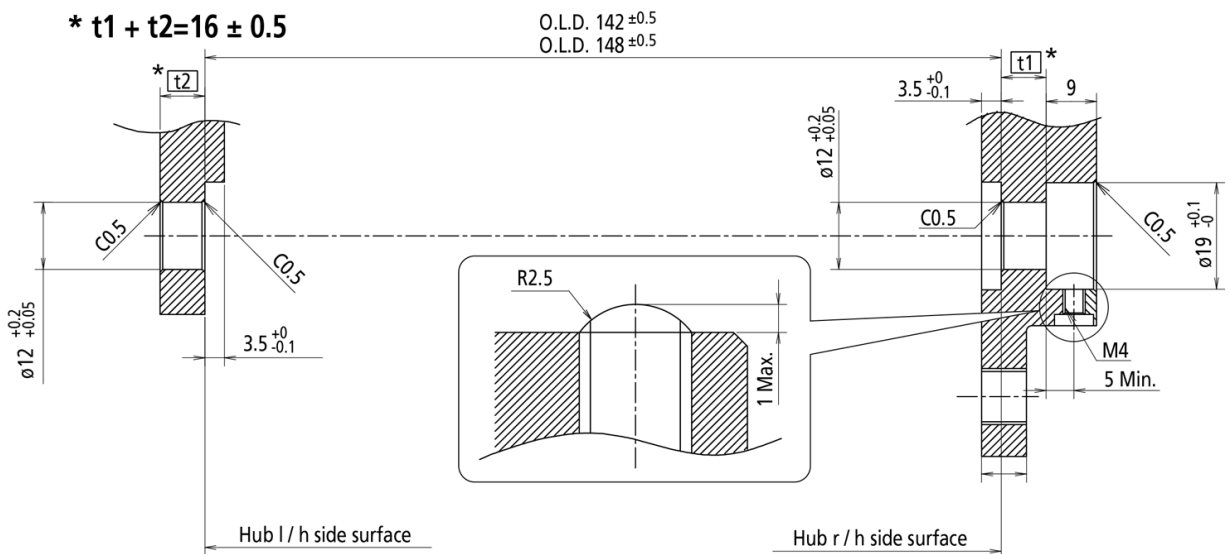
AX-MT700-157x12 / AX-MT500-157x12 (O.L.D. 157mm)



- Total rear dropout thickness  $t_1 + t_2$  should be in  $13.5 \pm 0.5$  mm.
- Upper drawing shows an example of rear dropout. Please design and consider for rear dropout as a whole by your frame design .
- Total axle length (refer to [C-265](#))

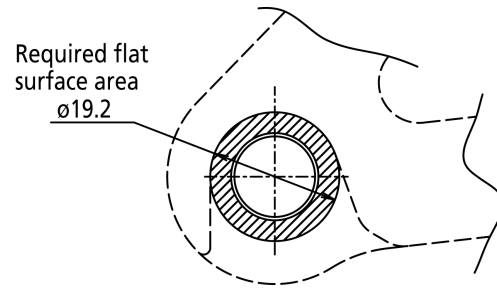
SM-AX76 / SM-AX56 (O.L.D. 142mm)

SM-AX76-B / SM-AX56-B (O.L.D. 148mm)



- Total rear dropout thickness  $t_1 + t_2$  should be in  $16 \pm 0.5$  mm.
- SM-AX76 / SM-AX56 / SM-AX76-B / SM-AX56-B specification is lever axle with adjust nut set.
- SM-AX76 / SM-AX56 / SM-AX76-B / SM-AX56-B total axle length (refer to [C-264](#))
- Upper drawing shows an example of rear dropout and nut keeper.
- Please design and consider for rear 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-AX56 / SM-AX76-B / SM-AX56-B screwing and rescrowing operation will be heavy.

## Required flat surface area



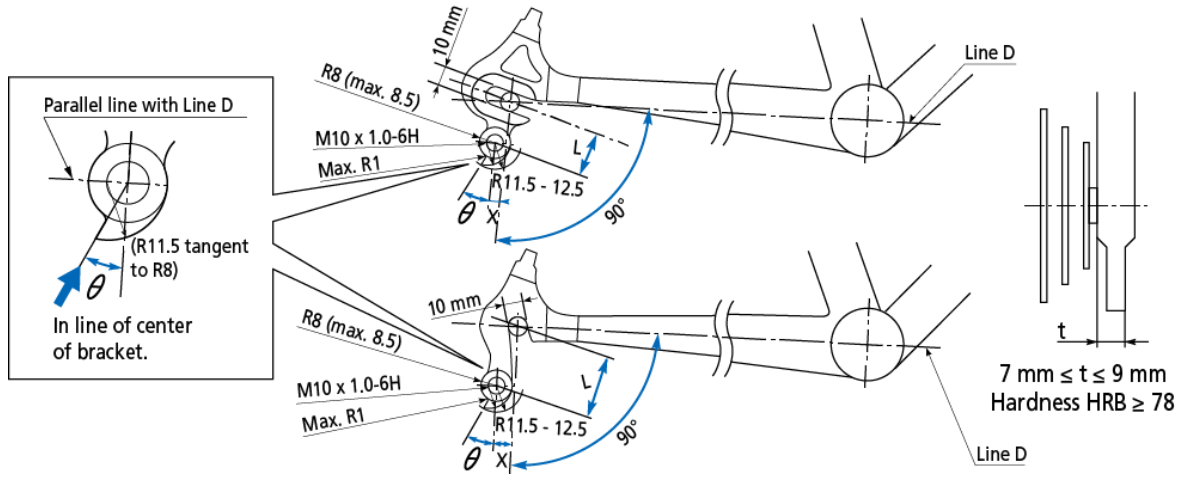
Other information about 12 mm rear E-THRU / Thru axle FREEHUB (AX-MT700 / AX-MT500 / SM-AX78 / SM-AX76 / SM-AX58 / SM-AX56 / SM-AX78-B / SM-AX76-B / SM-AX58-B / SM-AX56-B are not recommended for downhill usage with SAINT and ZEE hubs.)

- About clearance between the smallest sprocket (top gear) and rear dropout is explained at [C-037](#).
- Rear dropout configuration and rear dropout dimension for SHIMANO SHADOW RD are explained at [C-022](#).
- 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.

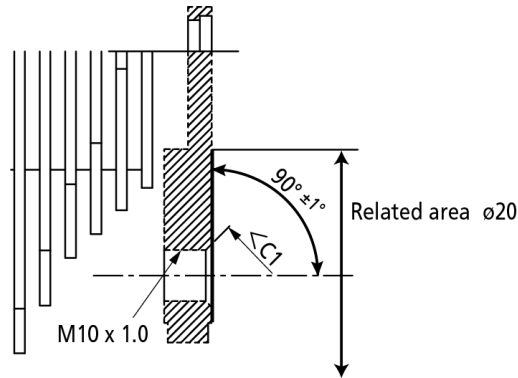


## Rear dropout (with derailleur hanger) C-534

RD-R9100 / RD-R9150 / RD-R8000 / RD-R8050 / RD-R7000 / RD-9000 / RD-6800 / RD-4700 / RD-RX800 / RD-RX805 / RD-RX810 / RD-RX812 / RD-RX815 / RD-RX817 / RD-RX400



Rear dropout type	L (mm)	X (mm)	Angle $\theta$
Road bike recommendation	24 to 28	7 to 10	30° to 35°



This information also applies all rear dropouts.

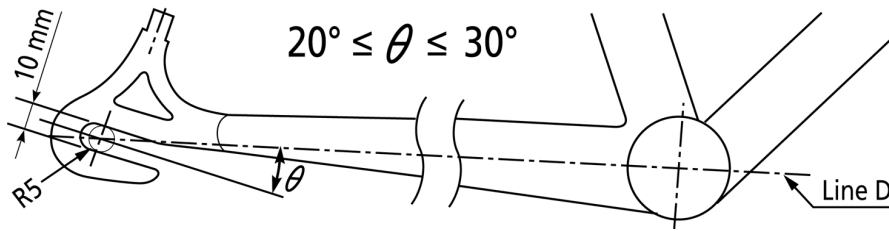
### NOTE

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

## Rear dropout (without derailleur hanger) C-029

In order to maintain optimum SIS shifting performance, Set dimensions as shown in below.  
QR can not be used for rear dropout (without derailleur hanger).

### RD bracket type



Thickness:  $4\text{mm} < t < 5\text{mm}$   
Hardness (Over locknut contact portion):  $\text{HRB} \geq 65$

### Reversed type, RD bracket type



Thickness:  $4\text{mm} < t < 5\text{mm}$   
Hardness (Over locknut contact portion):  $\text{HRB} \geq 65$

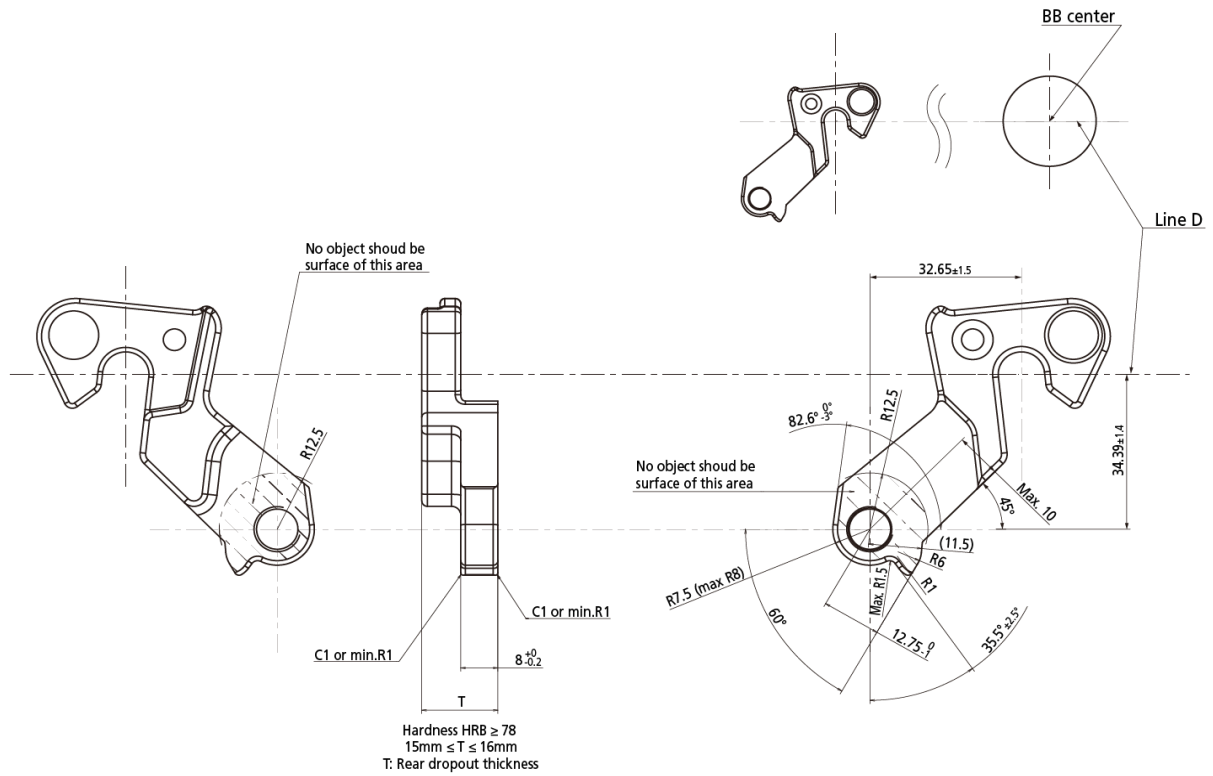
Make sure rear dropout should not be deformed during assembly and transportation. Less stiff rear dropout may deform and cause bad shifting performance.

# Direct mount rear dropout dimensions C-028

## Direct mount rear dropout dimensions (QR type)

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

**RD-R9100 / RD-R9150 / RD-R8000 / RD-R8050 / RD-R7000 / RD-RX800 / RD-RX805 / RD-RX810 / RD-RX812 / RD-RX815 / RD-RX817 / RD-RX400**

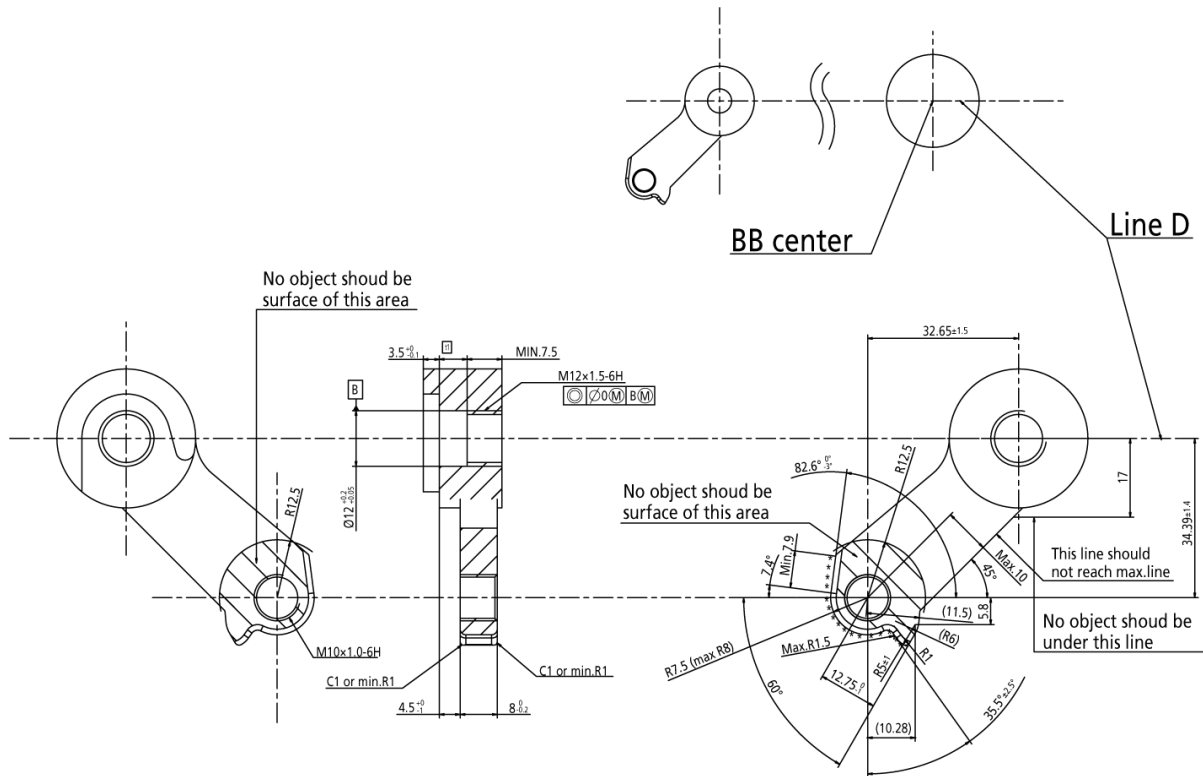


### NOTE

- RD-R9100 / R9150 / RD-R8000 / RD-R8050 / RD-R7000 / RD-RX800 / RD-RX805 / RD-RX810 / RD-RX812 / RD-RX815 / RD-RX817 / RD-RX400 are compatible with direct attachment (conventional) rear dropout too.
- For RD-RX810 / RD-RX812 / RD-RX815 / RD-RX817 and RD-RX400, refer to [C-597](#)

**Direct mount rear dropout dimensions (E-THRU type)**

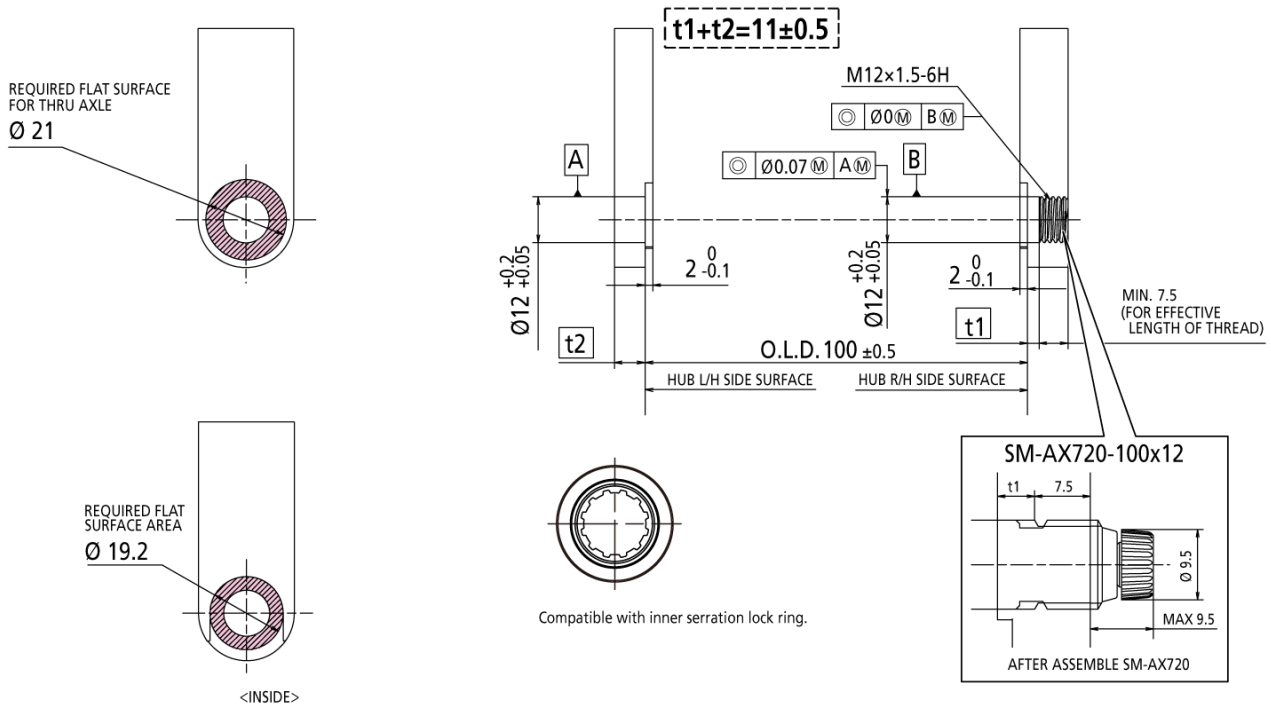
**RD-R9100 / RD-R9150 / RD-R8000 / RD-R8050 / RD-R7000 / RD-RX800 / RD-RX805 / RD-RX810 / RD-RX812 / RD-RX815 / RD-RX817 / RD-RX400**



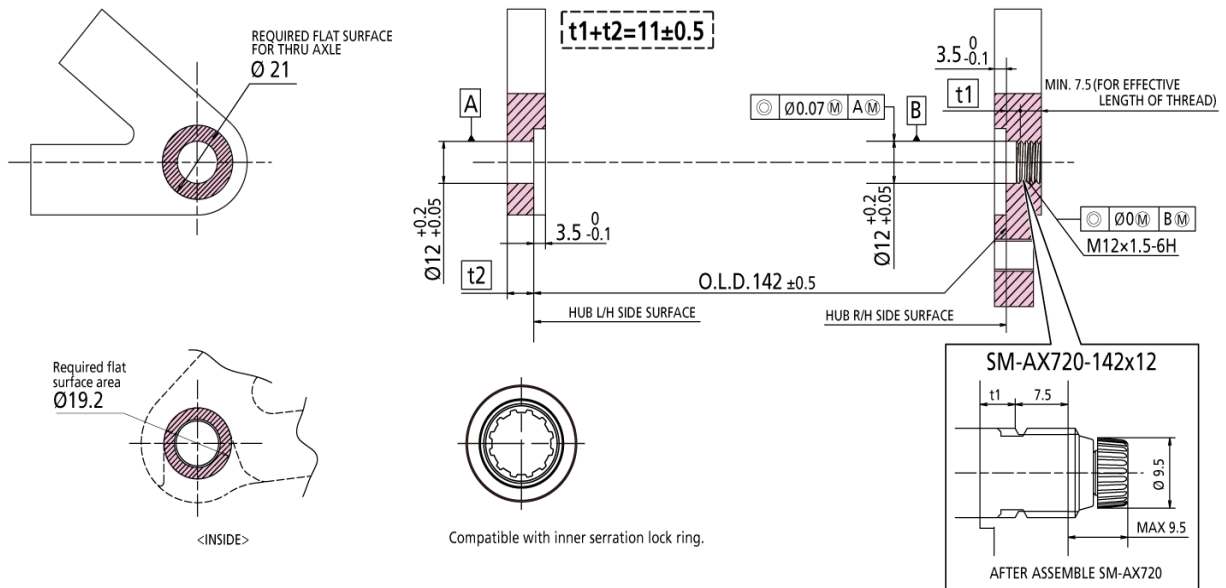
**NOTE**

- For RD-RX810 / RD-RX812 / RD-RX815 / RD-RX817 and RD-RX400, refer to [C-597](#)

**Front 12mm E-THRU system**



**Rear 12mm E-THRU system**

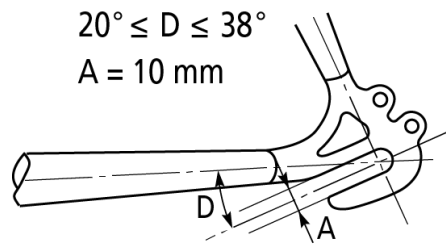


# Rear dropout dimensions [URBAN (ALFINE, NEXUS)]

C-030

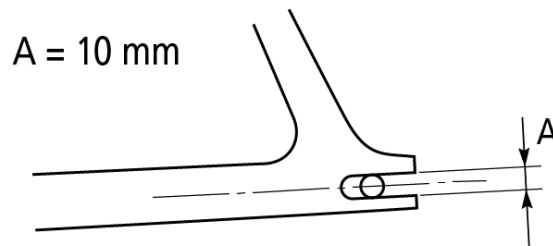
SHIMANO internal geared hub is designed to be compatible with the following shapes of rear dropout.

## Standard type rear dropout C-033



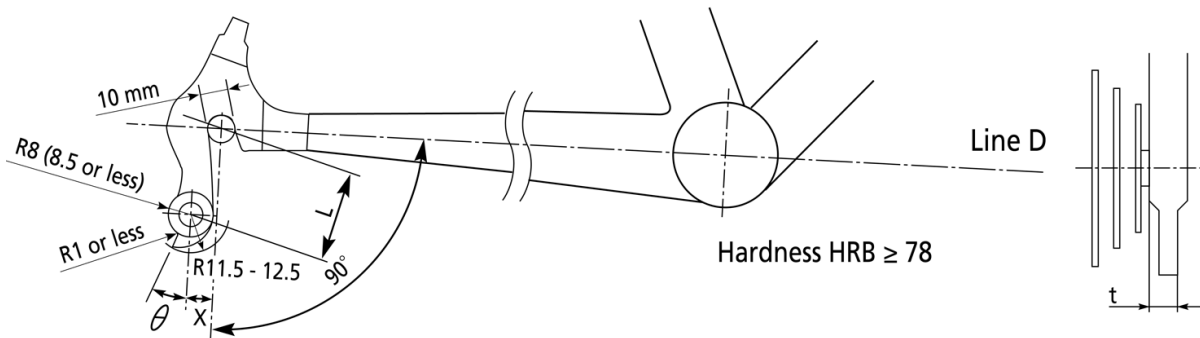
$4 \text{ mm} \leq t \leq 7.5 \text{ mm}$   
 (t): Rear dropout thickness

## Reversed type rear dropout (use with the chain adjuster) C-034



$4 \text{ mm} \leq t \leq 7.5 \text{ mm}$   
 (t): Rear dropout thickness

The CT-S500 is compatible with rear dropout (with derailleur hanger) of the following sizes.



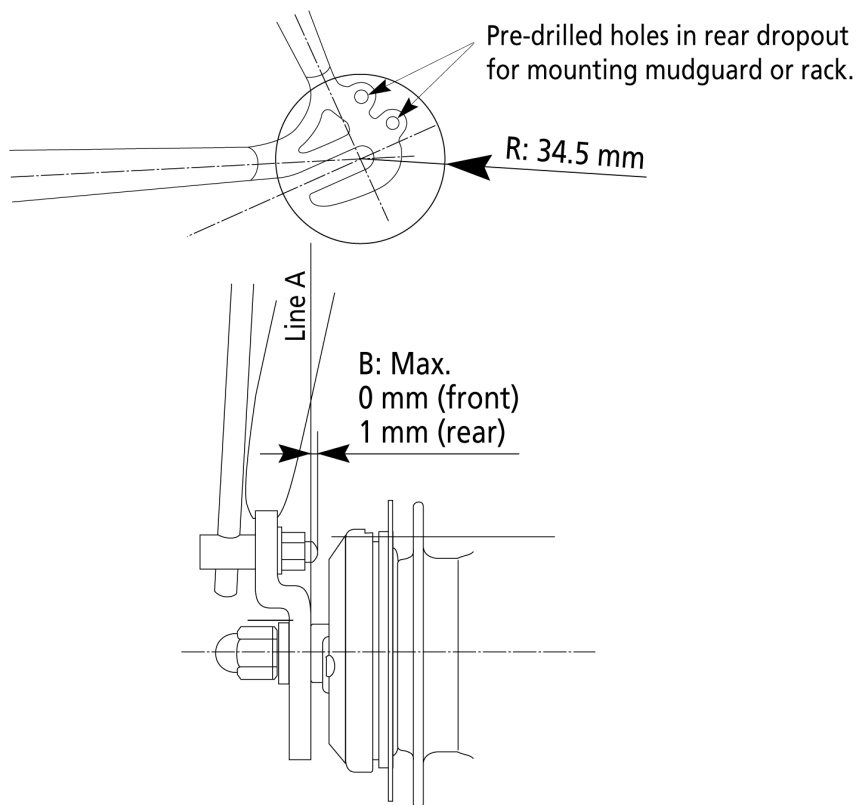
$5 \text{ mm} \leq t \leq 9 \text{ mm}$   
 (t): Rear dropout thickness

Rear dropout	L (mm)	X (mm)	$\theta$
Recommended for CT-S500	24	4-10	30° - 35°
	26	6-10	30° - 35°

## Cautionary points for installing mudguards and carrier racks 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 juttet shown as B.



### NOTE

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

## Front/Rear dropout thickness and QR skewer length C-036

### QR skewer length adaptation with dropout thickness

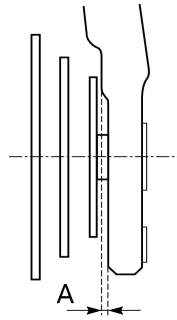
14

	O.L.D. (mm)	Dropout thickness (mm)			QR skewer length (mm)		
		Left hand dropout	Right hand dropout	Left/Right Total	Alloy QR lever	Steel QR lever	
Rear	MTB	141	6 - 8	6 - 8	12 - 16	174	172
			8 - 10	8 - 10	16 - 20	178	176
		135	6 - 8	6 - 8	12 - 16	168	166
			8 - 10	8 - 10	16 - 20	173	170
	ROAD Cyclocross	130	6 - 8	6 - 8	12 - 16	-	161
		135	6 - 8	6 - 8	12 - 16	168	166
			8 - 10	8 - 10	16 - 20	173	170
		130	6 - 8	6 - 8	12 - 16	163	161
Front	100	MTB ROAD Cyclocross	5 - 6	5 - 6	10 - 12	129	129
			6 - 8	6 - 8	12 - 16	133	133
		URBAN	7.5 - 9.5	7.5 - 9.5	15 - 19	136	136

# Clearance between the smallest sprocket and rear dropout

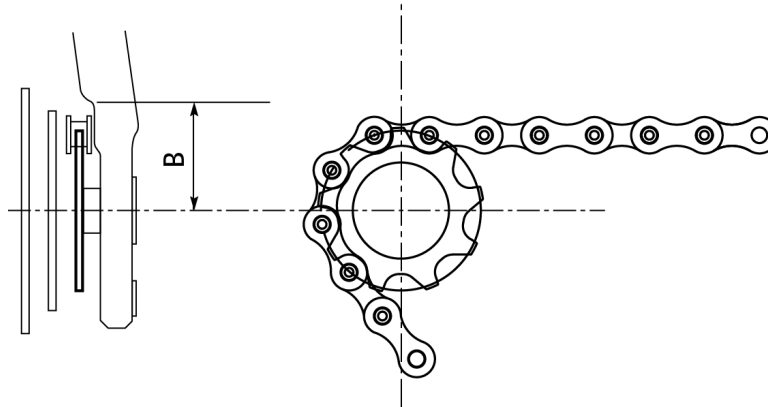
Set the distance between the smallest sprocket (top gear) and the rear dropout as explained below.

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)
12, 11, 10, 9, 8-speed	1.1 (max.)
7, 6-speed	2.2 (max.)

Design the rear dropout while abiding by dimension B below. Dimension B will differ depending on the number of teeth on the smallest sprocket. If the dimensions do not satisfy the standards, the chain and seat stay or the chain and chain stay may come in contact when the chain is on the smallest sprocket.

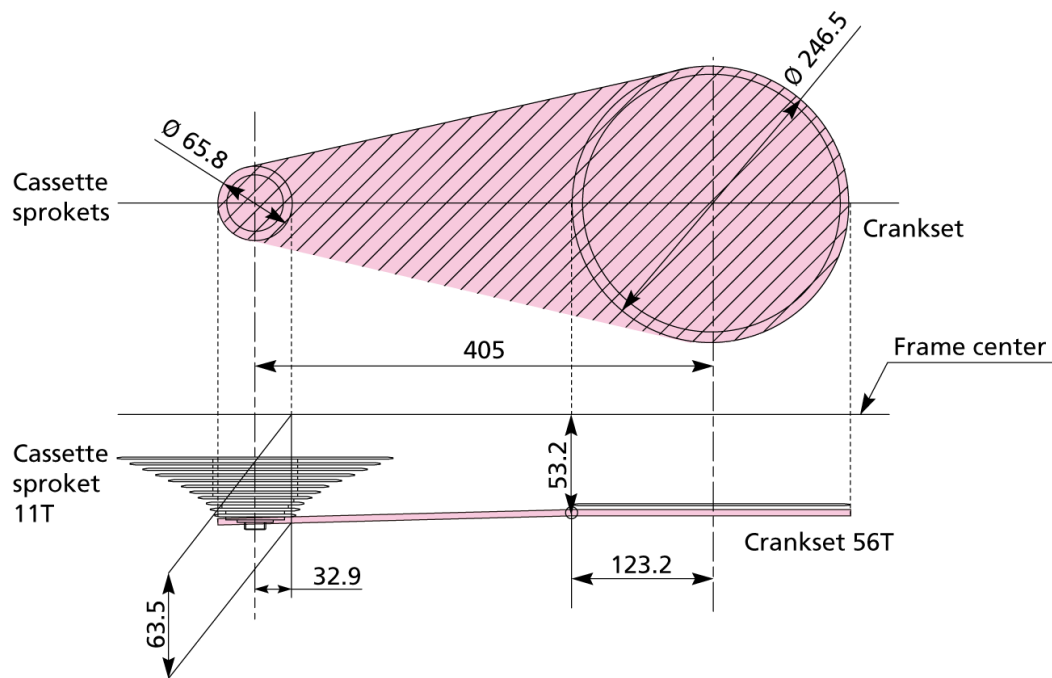


Teeth	Dimension "B" (mm)
10T	30.7 (min.)
11, 12T	32.7 (min.)
13T	34.7 (min.)
14T	36.7 (min.)
15T	38.7 (min.)
16T	40.7 (min.)



## 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.



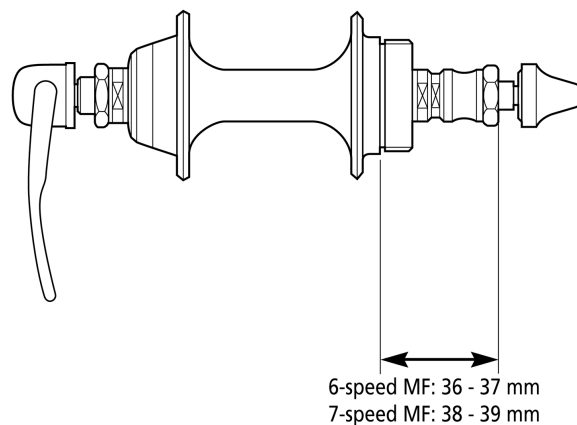
### NOTE

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

## Rear hub dimensions [MTB]

**C-040**

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



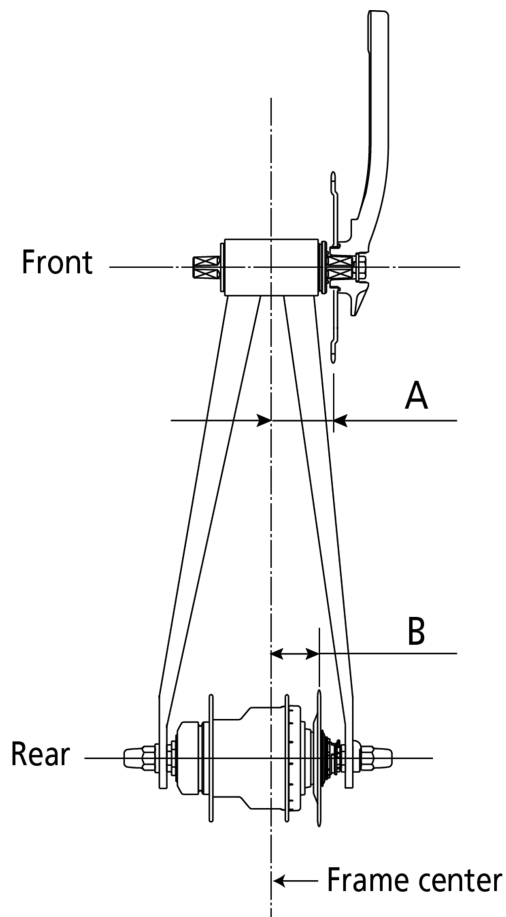
## Chain line for internal geared hub

C-042

 $|A - B| \leq 5 \text{ mm}$ In case of 24 inches or less wheel bicycle;  $|A - B| \leq 3 \text{ mm}$ 

A: Actual front chain line

B: Actual rear chain line

**NOTE**

Without following spec.

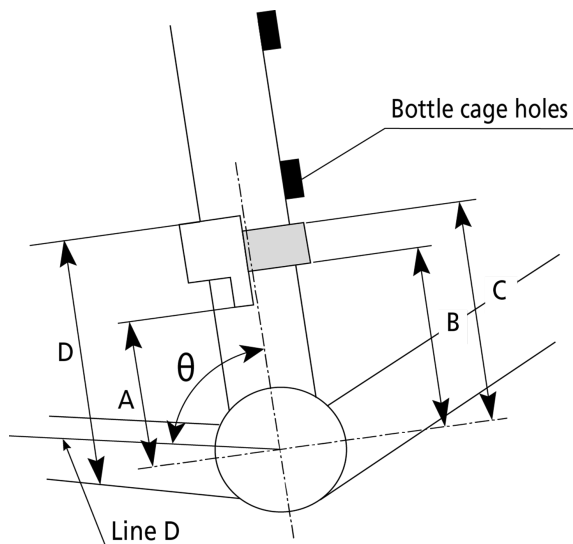
- For Mechanical SG  
FC-S501 Double guard spec. x CS-S500 (with Guard plate) inward assembly.
- For D12 SG  
FC-S501 Double guard spec. x CS-S500 (with Guard plate) inward assembly x MU-UR500  
FC-S501 Double guard spec. x SM GEAR inward assembly x MU-UR500

## Band type [MTB]

C-047

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 bottom bracket center to bottom of rear clamp band.
- B: From bottom bracket center to bottom of clamp band.
- C: From bottom bracket center to top of clamp band.
- D: From bottom bracket center to top of rear clamp band.

### Recommended seat tube diameter

	Min. (mm)	Max. (mm)
S	Refer to <a href="#">C-044</a>	
M		
L		

# Low clamp type C-048

Rear speed	Model No.	$\theta$ (deg.)	Outer chainring teeth	A (mm)	B (mm)	C (mm)	D (mm)
11	FD-M7025-11-L	66-69	34T	60	60	83	85
			36T	64	64	87	89
			38T	68	68	91	93
10	FD-M6000-L	66-69	40T	68	68	90	90
			42T	72	72	94	94
	FD-M675 FD-M615	66-69	38T	60	60	83	85
			40T	64	64	87	89
			42T	68	68	91	93
	FD-M617-L	66-69	44T	72	72	95	99
			36T	64	64	86	86
	FD-M6025-L	66-69	38T	68	68	90	90
			34T	60	60	83	85
			36T	64	64	87	89
	FD-T8000-L-6 FD-T6000-L-6	66-69	38T	68	68	91	93
48T			58	60	83	84	
FD-T8000-L-3 FD-T6000-L-3	63-66	48T	58	60	83	84	
9	FD-M3000-TS6	66-69	40T	52	55	78	79
	FD-T3000-TS3	63-66	44T	52	52	75	76
			48T	60	60	83	84
	FD-T3000-TS6	66-69	44T	52	52	75	76
			48T	60	60	83	84
	FD-T3000-2-TS3	63-68	46T	56	57	78	80
	FD-M2020-TS	64-69	36T	52	55	78	79
	FD-M2000-TS3	63-66	40T	52	55	78	79
	FD-M2000-TS6	66-69	40T	52	55	78	79
	FD-M370-3	63-66	44T	52	52	75	76
48T			60	60	83	84	
FD-M370-6	66-69	44T	52	52	75	76	
		48T	60	60	83	84	
8, 7	FD-M315-TS	64-69	36T	52	55	78	79
	FD-M310-3	63-66	42T	48	48	71	72
			48T	60	60	83	84
	FD-M310-6	66-69	42T	48	48	71	72
			48T	60	60	83	84
	FD-TX800-TS3	63-66	42T	48	48	71	72
			48T	60	60	83	84
	FD-TX800-TS6	66-69	42T	48	48	71	72
			48T	60	60	83	84
	FD-TY700-TS3	63-66	42T	48	48	70	72
	FD-TY700-TS6	66-69	42T	48	48	70	72
FD-TY710-TS3	63-66	48T	60	60	82	84	
FD-TY710-TS6	66-69	48T	60	60	82	84	
FD-TY710-2	63-68	46T	57	57	79	81	
7, 6	FD-TY500-TS3	63-66	42T	48	48	70	72
	FD-TY500-TS6	66-69	42T	48	48	70	72
	FD-TY510-TS3	63-66	48T	60	60	82	84
	FD-TY510-TS6	66-69	48T	60	60	82	84

## High clamp type C-049

Rear speed	Model No.	$\theta$ (deg.)	Outer chainring teeth	A (mm)	B (mm)	C (mm)	D (mm)
11	FD-M7025-11-H	66-69	34T	120	120	143	143
			36T	124	124	147	147
			38T	128	128	151	151
10	FD-M6000-H	66-69	40T	128	128	151	151
			42T	132	132	155	155
	FD-M617-H	66-69	36T	124	124	147	147
			38T	128	128	151	151
	FD-M6025-H	66-69	34T	120	120	143	143
			36T	124	124	147	147
			38T	128	128	151	151
9	FD-T8000-H-3 FD-T6000-H-3	63-66	48T	131	131	154	155
	FD-M4000-DS6	66-69	40T	128	128	152	152
	FD-M2000-DS3	63-66	40T	128	128	152	152
	FD-M2000-DS6	66-69	40T	128	128	152	152
	FD-M371-3	63-66	44T	125	128	150	153
			48T	133	136	158	161
FD-M371-6	66-69	44T	125	128	150	153	
		48T	133	136	158	161	
8,7	FD-M313-3	63-66	42T	116	116	138	148
			48T	128	128	150	160
	FD-M313-6	66-69	42T	116	116	138	148
			48T	128	128	150	160
7,6	FD-TY300-DS6	66-69	42T	109	117	135	137
	FD-TZ500	66-69	42T	108	116	135	135
	FD-TZ510	66-69	48T	115	122	140	140

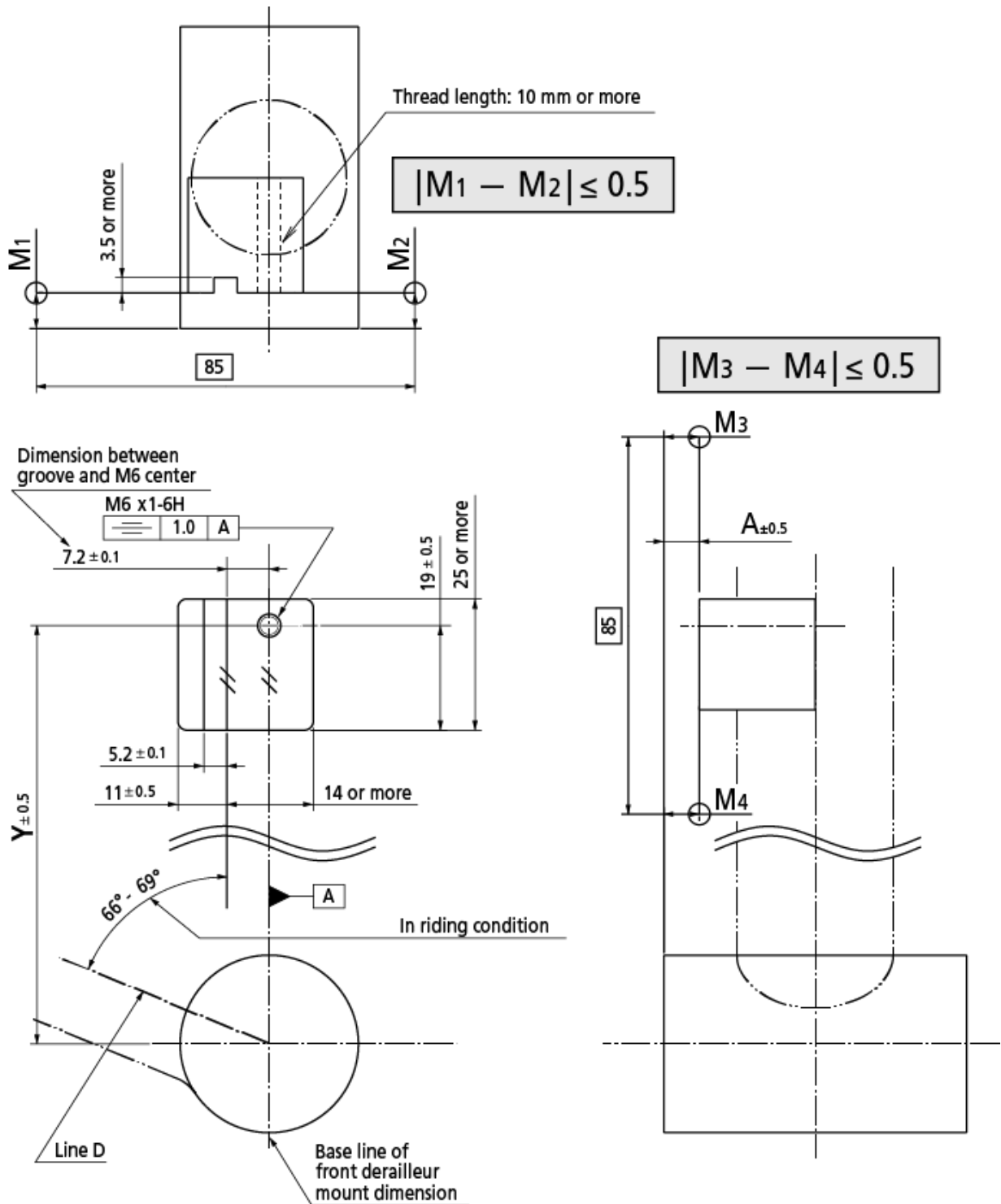
## Middle clamp type C-540

3

Rear speed	Model No.	$\theta$ (deg.)	Outer chainring teeth	A (mm)	B (mm)	C (mm)	D (mm)
12	FD-M9100-M	66-69	38T	93	93	116	117
	FD-M8100-M	66-69	36T	89	89	112	113
			38T	93	93	116	117
	FD-M7100-M	66-69	36T	89	89	112	113
38T			93	93	116	117	
11	<a href="#">FD-M5100-M</a>	66-69	36T	89	89	112	113
10	FD-M6000-M	66-69	40T	93	93	116	117
			42T	97	97	120	121
	<a href="#">FD-M4100-M</a>	66-69	36T	89	89	112	113
9	FD-M4020-M	64-69	36T	79	89	114	120
	<a href="#">FD-M3100-M</a>	64-69	40T	83	93	118	124
	<a href="#">FD-M3120-M</a>	64-69	36T	79	89	114	120
	<a href="#">FD-M3120-M-B</a>	64-69	36T	79	89	114	120

## 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
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
Press-Fit	89.5 (symmetric)	15.75
	92.0 (asymmetric)	18.25

**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

FD type	Mount (Y)	Rear speed	Crankset	Model No.
				FD-M7025-11-D
Down Swing	155.5 mm	11	38-28T	✓
			36-26T	✓
			34-24T	✓
	159.5 mm	11	38-28T	✓
			36-26T	✓
			34-24T	-

FD type	Mount (Y)	Rear speed	Crankset	Model No.		
				FD-M781-A-D FD-M671-A-D FD-M611-D	FD-M786-D FD-M616-D	FD-M6025-D
Down Swing	155.5 mm	10	40-30-22T	✓	-	-
			42-32-24T	✓	-	-
			36-22T	-	-	-
			38-24T	-	✓	-
			38-26T	-	✓	-
			40-28T	-	✓	-
			42-30T	-	✓	-
			44-30T	-	-	-
			38-28T	-	-	✓
			36-26T	-	-	✓
			34-24T	-	-	✓
			159.5 mm	10	40-30-22T	-
	42-32-24T	✓			-	-
	36-22T	-			-	-
	38-24T	-			-	-
	38-26T	-			-	-
	40-28T	-			✓	-
	42-30T	-			✓	-
	44-30T	-			✓	-
	38-28T	-			-	✓
	36-26T	-			-	✓
	34-24T	-			-	-
	155.5 mm	9			40-30-22T	-

FD type	Mount (Y)	Rear speed	Crankset	Model No.		
				FD-M9100-D	FD-M8100-D FD-M7100-D	<a href="#">FD-M5100-D</a>
SIDE SWING	155.5 mm	12	38-28T	✓	✓	-
			36-26T	-	✓	-
		11	40-30-22T	-	-	-
			38-28T	-	-	-
			36-26T	-	-	✓
			34-24T	-	-	-
	159.5 mm	11	40-30-22T	-	-	-
			38-28T	-	-	-
			36-26T	-	-	✓
			34-24T	-	-	-

FD type	Mount (Y)	Rear speed	Crankset	Model No.		
				FD-M6000-D	<a href="#">FD-M4100-D</a>	FD-M617-D
SIDE SWING	155.5 mm	10	40-30-22T	✓	-	-
			42-32-24T	✓	-	-
			38-24T	-	-	✓
			36-22T	-	-	✓
			38-28T	-	-	-
			36-26T	-	✓	-
			34-24T	-	-	-
			40-30-22T	✓	-	-
	159.5 mm	10	42-32-24T	✓	-	-
			38-24T	-	-	✓
			36-22T	-	-	✓
			38-28T	-	-	-
			36-26T	-	✓	-
			34-24T	-	-	-

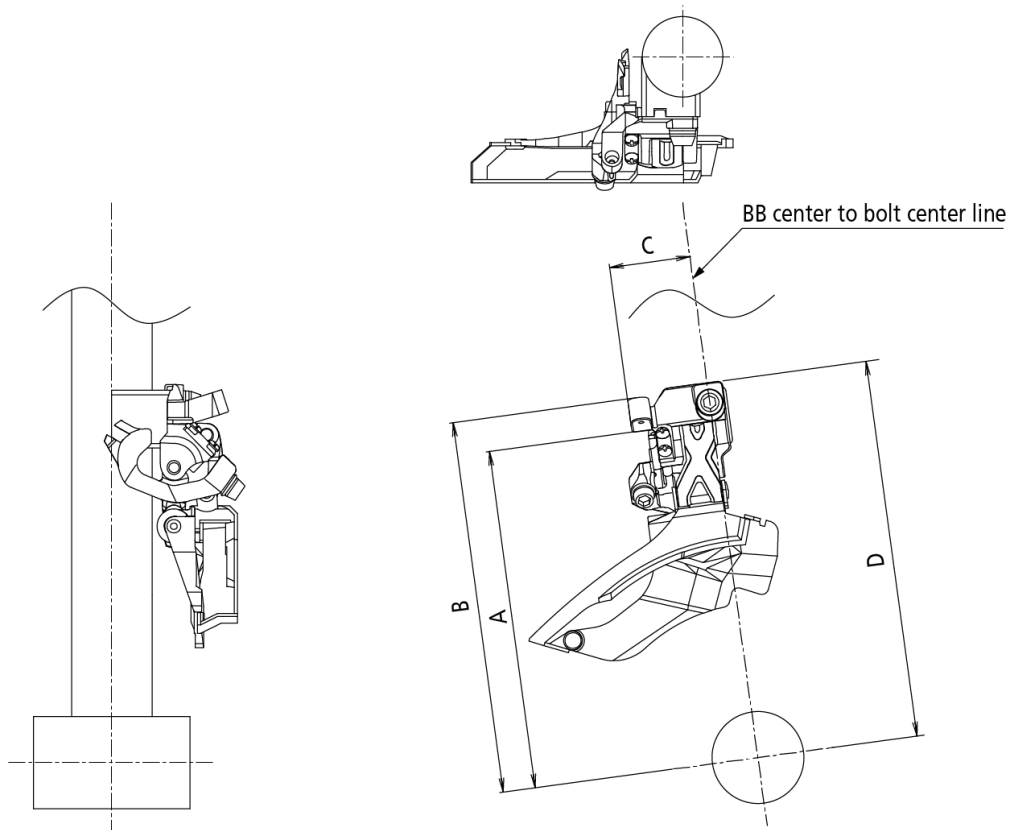
FD type	Mount (Y)	Rear speed	Crankset	Model No.
				<a href="#">FD-M3120-D</a>
SIDE SWING	155.5 mm	9	36-22T	✓
	159.5 mm	9	36-22T	✓

FD type	Mount (Y)	Rear speed	Crankset	Model No.
				FD-M8070 + SM-FD905-D
DI2	155.5 mm	11	40-30-22T	-
			34-24T	✓
			36-26T	✓
			38-28T	✓
	159.5 mm	11	40-30-22T	-
			38-28T	✓
			36-26T	✓
			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.



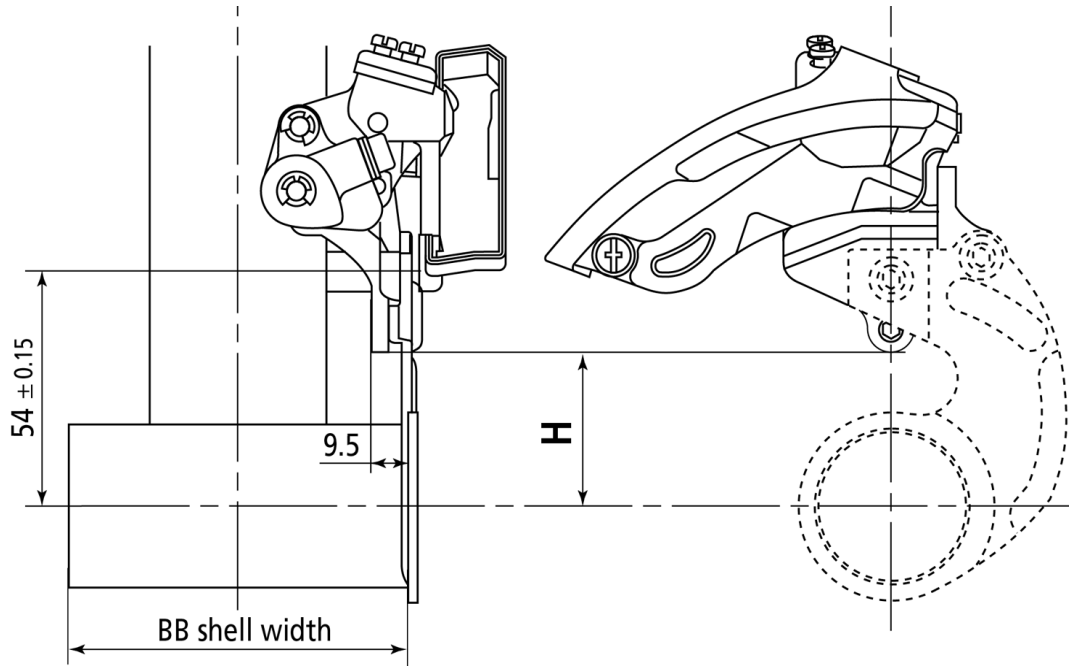


Please refer to [C-054](#) for other dimensions.

FD type	Rear Speed	Model No.	Outer chainring teeth	A (mm)	B (mm)	C (mm)	D (mm)
Down Swing (dual pull)	11	FD-M7025-11-D	34T	136	155	35	166
			36T	140	159	35	170
			38T	144	163	35	174
	10	FD-M611-D FD-M671-A-D FD-M781-A-D	40T	137	154	36	167
			42T	141	158	36	171
			38T	137	154	36	167
		FD-M786-D	40T	141	158	36	171
			42T	145	162	36	175
			44T*	149	166	36	179
		FD-M6025-D	34T	136	155	35	166
			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.

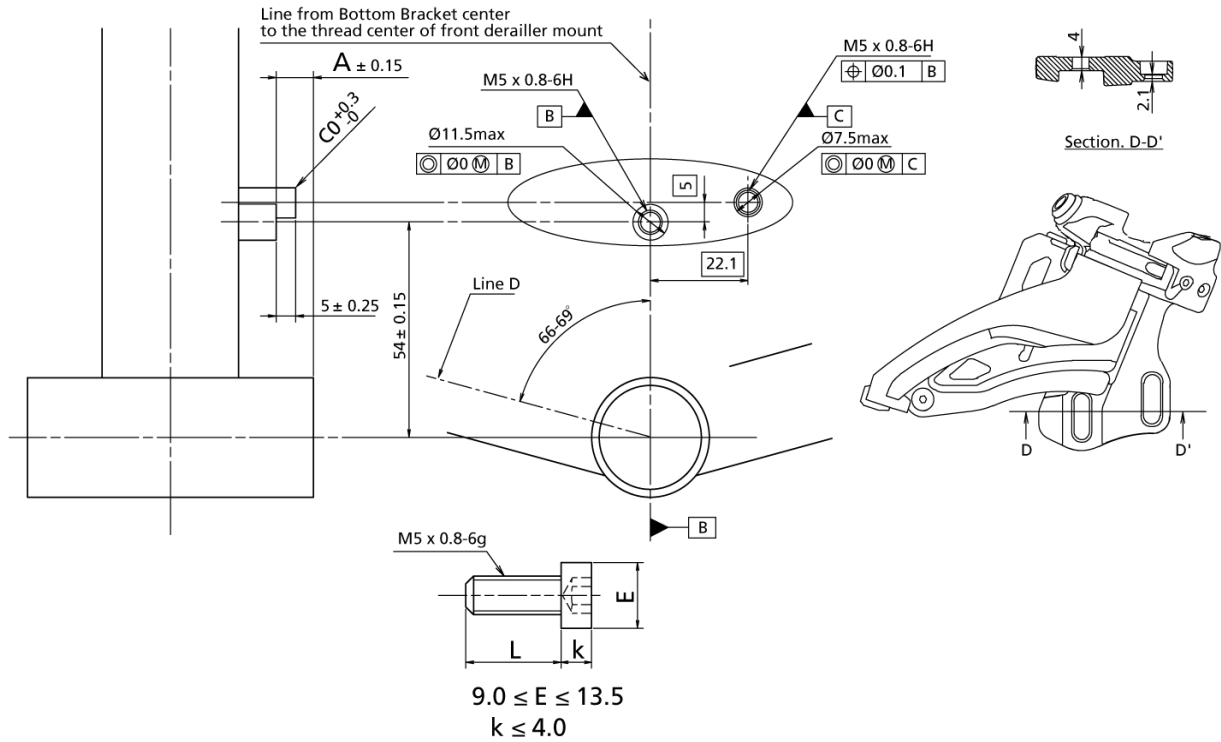


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FD type	Rear Speed	Model No.	Outer chainring teeth	Dimension H (mm)	BB shell width (mm)
SIDE SWING	12	FD-M9100-E	38T	46	68,73
		FD-M8100-E	36T	42	
			38T	46	
		FD-M7100-E	36T	42	
		38T	46		
DI2 (with SM-FD905-E)	11	<a href="#">FD-M5100-E</a>	36T	42	
		FD-M8070	34T	38	
			36T	42	
38T	46				
SIDE SWING	10	FD-M6000-E	40T	42	
			42T	46	
			36T	42	
			38T	46	
<a href="#">FD-M4100-E</a>		36T	42		
	TOP SWING	FD-M610-E	40T	42	
			42T	46	
FD-M785-E2 FD-M675-E2 FD-M615-E2			38T	42	
			40T	46	
	FD-M618-E	36T	42		
38T		46			
TOP SWING (down pull only)					
SIDE SWING	9	<a href="#">FD-M3120-E</a>	36T	42	

## Without BB plate

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



Bottom bracket type	Bottom bracket shell width (mm)	A dimension (mm)
Threaded	68.0	7.0
	73.0	9.5
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 does not provide this fitting bolt, so please use the bolt like this size.

### CAUTION

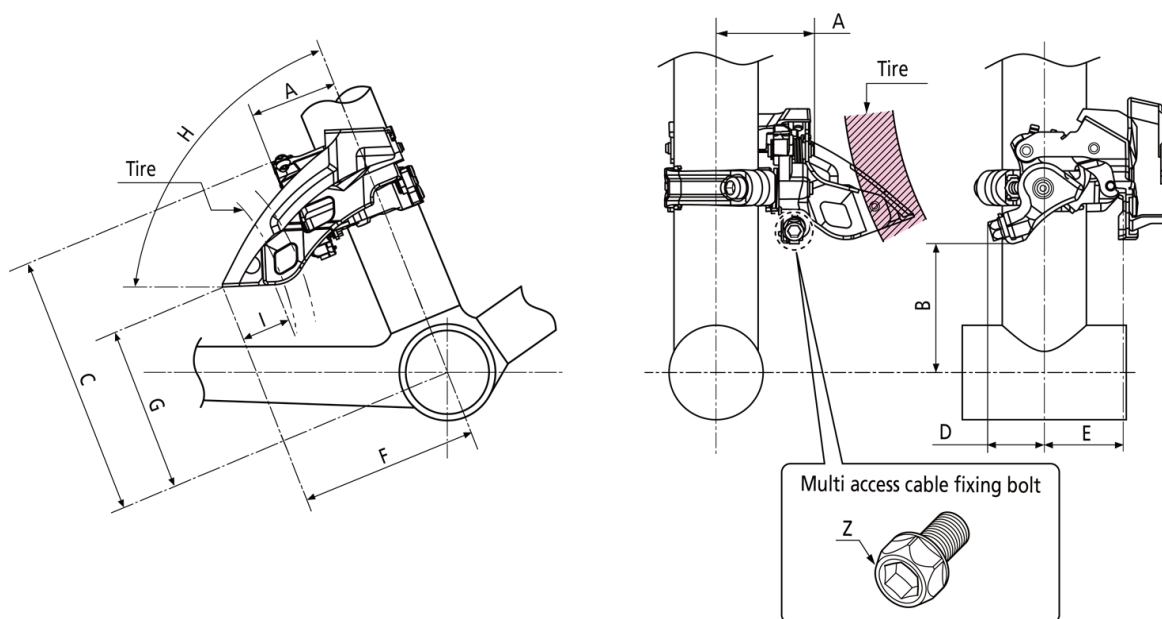
Please contact to SHIMANO sales office before using this option.

## Chain line 3mm outboard spec.

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

### NOTE

- For dimension of crankset which is chain line 3 mm outboard spec., refer to [C-119](#), [C-120](#)
- It also requires new dimension of frame which cassette position is 3mm outboard

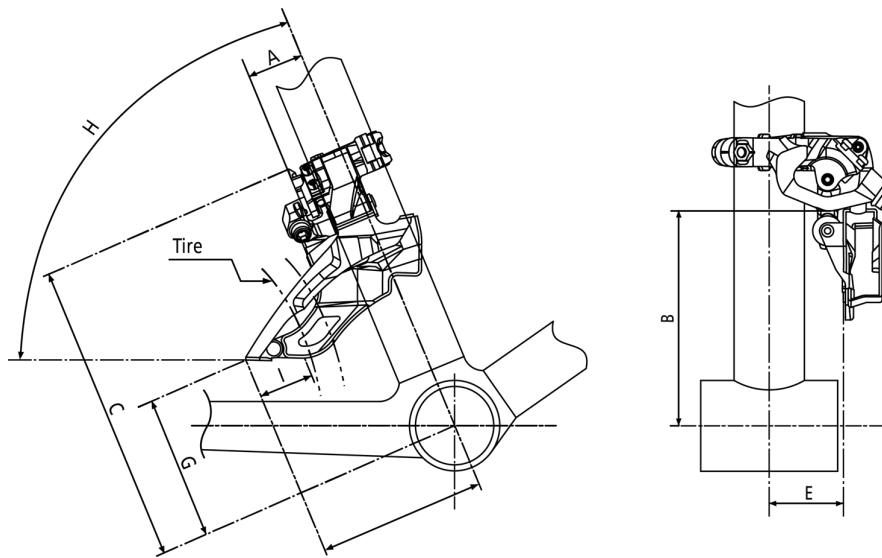


- A: From seat tube center to inner link head.
- B: From bottom bracket center to inner link head lowest position during movement.
- C: From bottom bracket center to most critical point for interference with tire, mud guard.
- D: From bottom bracket center to inner link head most left position during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

FD type	Rear Speed	Model No.	Outer chainring teeth	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-M7025-11 (-L) (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-M610 (-E)	42T	41	46	110	32	30	84	58	70	25	✓
			44T	41	46	110	32	31	91	57	70	28	
		FD-T8000-L-3 FD-T6000-L-3	44T	41	46	110	32	31	91	57	67	28	
			38T	41	47	112	31	28	74	57	70	24	
		FD-M785 (-E2) FD-M675 (-E2) FD-M615 (-E2)	40T	41	53	116	32	30	74	61	70	24	
			36T	41	62	118	12	32	70	56	72.6	19	
		FD-M618 (-E) (down pull only)	38T	41	66	122	12	32	70	60	72.6	19	
			34T	41	58	114	12	32	70	52	72.6	19	
			36T	41	62	118	12	32	70	56	72.6	19	
		9	FD-M6025 (-L) (down pull only)	38T	41	66	122	12	32	70	60	72.6	
	40T			37	39	92	28	30	73	56	63	17	
	40T			37	39	92	28	30	73	56	63	17	
	FD-M3000-TS6		36T	37	40	95	33	32	72	56	66	23	
			44T	44	52	106	29	29	84	61	63	16	
	FD-T3000-TS3		48T	44	60	114	29	29	84	69	63	16	
			46T	44	56	117	29	30	86	69	61	23	
	FD-T3000-2-TS3		44T	44	52	106	29	29	87	57	66	17	
			48T	44	60	114	29	29	87	65	66	17	
	FD-M370-3		44T	44	51	106	29	29	84	61	63	16	
			48T	44	59	114	29	29	84	69	63	16	
		44T	44	51	106	29	29	87	57	66	17		
FD-M370-6	48T	44	59	114	29	29	87	65	66	17			

FD type	Rear Speed	Model No.	Outer chainring teeth	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-M310-3	42T	46	47	99	28	27	82	56	63	10	-
		FD-M310-6	48T	46	57	111	28	24	82	66	63	10	
		FD-M315-TS	36T	37	40	95	33	30	72	56	66	23	
		FD-TX800-TS3	42T	46	47	99	28	27	82	56	63	10	
		FD-TX800-TS6	48T	46	57	111	28	24	82	66	63	10	
		FD-TY700-TS3	42T	42	45	98	28	24	81	54	63	14	
		FD-TY700-TS6	42T	42	45	98	28	24	83	51	66	15	
		FD-TY710-TS3	48T	42	57	100	28	24	81	66	63	14	
	FD-TY710-TS6	48T	42	57	110	28	24	83	63	66	15		
	FD-TY710-2-TS3	46T	41	58	104	29	31	86	71	61	21		
	FD-TY500-TS3	42T	42	45	98	28	24	81	54	63	14		
	FD-TY500-TS6	42T	42	45	98	28	24	83	51	66	15		
	FD-TY510-TS3	48T	42	57	110	28	24	81	66	63	14		
	FD-TY510-TS6	48T	42	57	110	28	24	83	63	66	15		

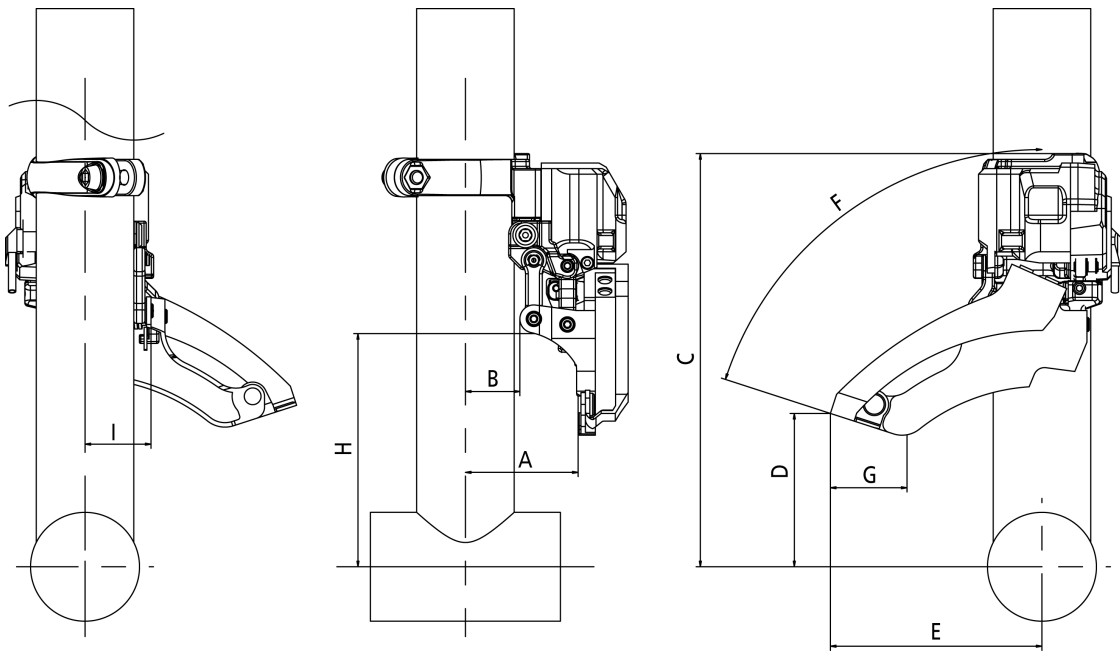


- A: From seat tube center to inner link head.
- B: From bottom bracket center to inner link head lowest position during movement.
- C: From bottom bracket center to most critical point for interference with tire, mud guard.
- D: From bottom bracket center to inner link head most left position during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

FD type	Rear Speed	Model No.	Outer chainring teeth	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (deg.)	I (mm)
Down Swing (dual Pull)	11	FD-M7025-11 (-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-M781-A FD-M671-A FD-M611 (-D)	40T	30	100	145	-	30	85	58	66	27
			42T	30	104	149	-	30	85	62	66	27
			38T	30	99	146	-	31	77	57	72	33
		FD-M786 (-D)	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-M6025 (-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
		FD-T8000-H-3 FD-T6000-H-3	44T	30	111	155	-	31	89	66	63	31

FD type	Rear Speed	Model No.	Outer chainring teeth	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (deg.)	I (mm)
Down Swing (dual pull)	9	FD-M591-6	44T	30	110	160	-	29	88	67	62	13
			48T	30	118	168	-	29	88	71	62	13
		FD-M4000-DS6	40T	26	102	137	-	30	73	55	63	21
			40T	28	107	137	-	30	73	55	63	21
		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-TY300-DS6	32	89	164	-	28	84	55	66	17	
		FD-TZ500	42T	32	89	164	-	top pull: 32 down pull: 24	81	51	66	14
		FD-TZ510	48T	32	104	168	-	24	94	60	-	10

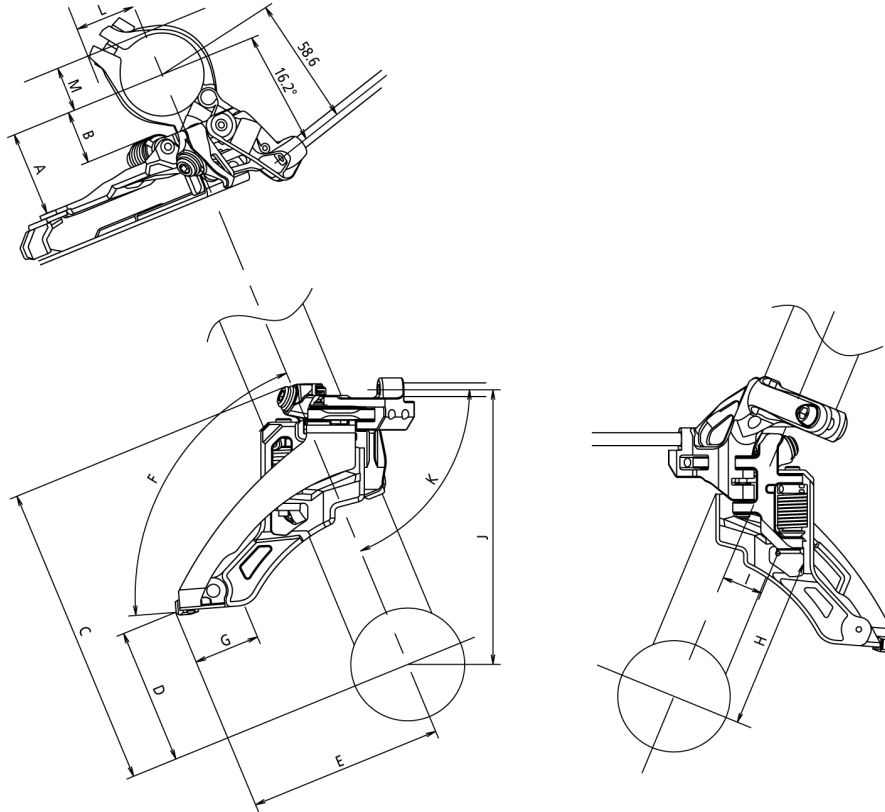


- A: From bottom bracket center to back side of the cage most critical point for interference with tire.
- B: From bottom bracket center to cage most inside position during movement.
- C: From bottom bracket center to motor unit highest position.
- D,E: From bottom bracket center to edge of cage for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

FD type	Rear Speed	Model No.	Outer chainring teeth	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (deg.)	G (mm)	H (mm)	I (mm)
DI2	11	FD-M8070	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 frame center to back side of the cage most critical point for interference with tire.
- B: From frame center to spring most inside position during movement.
- C: From bottom bracket center to cable fixing part highest position during movement. (E,L spec only)
- D,E: From bottom bracket center to edge of cage for interference with chainstay.
- F,G: Dimension of bottom side of cage for interference with chainstay.
- H,I: From bottom bracket center to lowest position of inner link.

FD type	Rear Speed	Model No.	Outer chainring teeth	A (mm)			B (mm)			C (mm)	D (mm)	E (mm)	F (deg.)	G (mm)	H (mm)	I (mm)	J (mm)	K (deg.)
				Chain line (mm)			Chain line (mm)											
				48.8	50	51.8	48.8	50	51.8									
SIDE SWING	12	FD-M9100-D	38T	32	-	35	21	-	24	124	61	71	72.6	21	75	21	98	57.6
		FD-M9100-E																
		FD-M9100-M	38T	32	-	35	21	-	24	124	61	71	72.6	21	75	21	98	57.6
		FD-M8100-D																
		FD-M8100-E	38T	32	-	35	21	-	24	121	57	71	72.6	21	71	21	96	57.6
		FD-M8100-M																
		FD-M8100-M	38T	32	-	35	21	-	24	125	61	71	72.6	21	71	21	96	57.6
		FD-M7100-D																
		FD-M7100-E	38T	32	-	35	21	-	24	121	57	71	72.6	21	71	21	96	57.6
		FD-M7100-M																
		FD-M7100-M	38T	32	-	35	21	-	24	125	61	71	72.6	21	71	21	96	57.6
		FD-M7100-M																



FD type	Rear Speed	Model No.	Outer chainring teeth	A (mm)			B (mm)			C (mm)	D (mm)	E (mm)	F (deg.)	G (mm)	H (mm)	I (mm)	J (mm)	K (deg.)
				Chain line (mm)			Chain line (mm)											
				48.8	50	51.8	48.8	50	51.8									
SIDE SWING	11	<a href="#">FD-M5100-D</a> <a href="#">FD-M5100-E</a>	36T	33	-	36	22	-	25	126	56	70	72.6	18	71	18	111	67.6
		<a href="#">FD-M5100-M</a>	36T	33	-	36	22	-	25	126	56	70	72.6	18	71	18	111	67.6
		FD-M6000-H	40T	-	32	-	-	18	-	129	54	83	72	26	76	15	115	67.6
	42T		-	32	-	-	18	-	133	58	83	72	26	80	15	119		
	FD-M6000-M FD-M6000-L	40T	-	32	-	-	18	-	129	54	83	72	26	76	15	115	67.6	
		42T	-	32	-	-	18	-	133	58	83	72	26	80	15	119		
	FD-M6000-D FD-M6000-E	40T	-	32	-	-	18	-	129	54	83	72	26	76	15	115	67.6	
		42T	-	32	-	-	18	-	133	58	83	72	26	80	15	119		
	<a href="#">FD-M4100-D</a> <a href="#">FD-M4100-E</a>	10	36T	33	-	36	22	-	25	126	56	70	72.6	18	71	18	111	67.6
				33	-	36	22	-	25	126	56	70	72.6	18	71	18	111	67.6
	FD-M617-H	36T	32	-	-	21	-	-	126	56	70	72.6	18	71	18	111	67.6	
			38T	-	-	21	-	-	130	60	70	72.6	18	75	18	115		
	FD-M617-L	36T	32	-	-	21	-	-	126	56	70	72.6	18	71	18	111	67.6	
			38T	-	-	21	-	-	130	60	70	72.6	18	75	18	115		
	FD-M617-D FD-M617-E	36T	32	-	35	21	-	24	126	56	70	72.6	18	71	18	111	67.6	
			38T	-	-	21	-	-	130	60	70	72.6	18	75	18	115		
	FD-M4020-M	9	36T	30	-	-	13	-	-	126	55	70	72.6	18	72	11	111	67.6
	<a href="#">FD-M3120-D</a> <a href="#">FD-M3120-E</a>	36T	30	-	33	13	-	16	126	55	70	72.6	18	72	11	111	67.6	
			30	-	-	13	-	-	126	55	70	72.6	18	72	11	111	67.6	
	<a href="#">FD-M3120-M</a>	36T	30	-	-	13	-	-	126	55	70	72.6	18	72	11	111	67.6	
	<a href="#">FD-M3120-M-B</a>	36T	-	-	33	-	-	16	126	55	70	72.6	18	72	11	111	67.6	

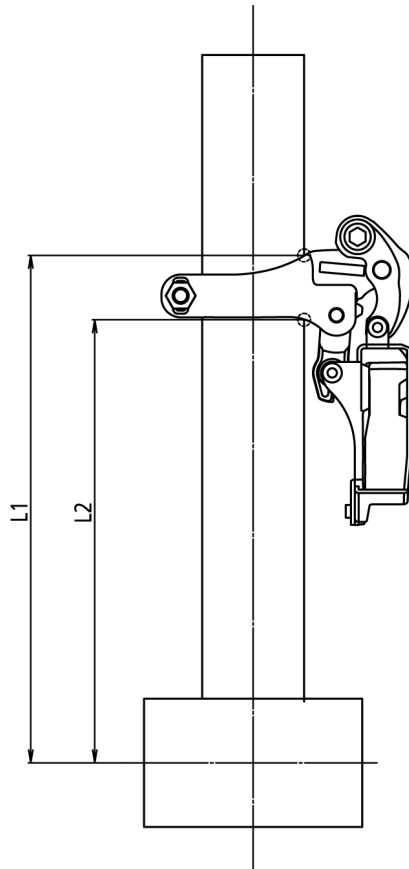
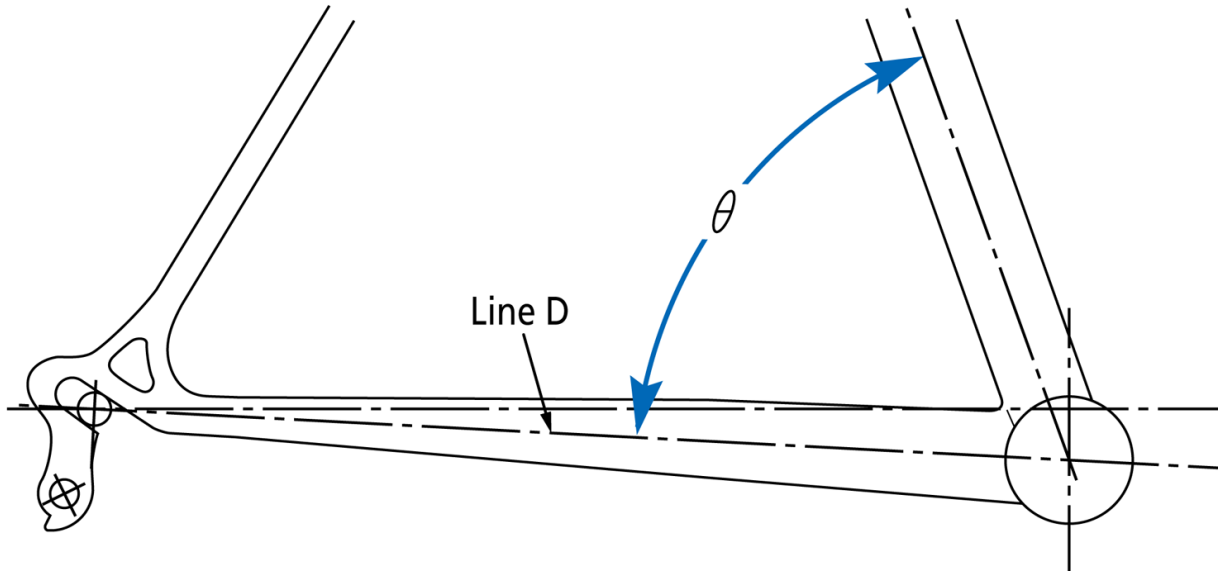
\* Only E/D type FD are compatible with chain line 3mm outboard spec.

FD type	Rear Speed	Model No.	Outer chainring teeth	L (mm)	M (mm)	
SIDE SWING	12	FD-M9100-D FD-M9100-E	38T	-	-	
		FD-M9100-M	38T	27	14	
		FD-M8100-D FD-M8100-E	36T	-	-	
			38T	-	-	
		FD-M8100-M	36T	27	14	
			38T	27	14	
	FD-M7100-D FD-M7100-E	36T	-	-		
		38T	-	-		
	FD-M7100-M	36T	27	14		
		38T	27	14		
	11	<a href="#">FD-M5100-D</a> <a href="#">FD-M5100-E</a>	36T	-	-	
			<a href="#">FD-M5100-M</a>	36T	27	14
				36T	27	14
	10	FD-M6000-H	40T	-	-	
			42T	27	15	
		FD-M6000-M FD-M6000-L	40T	-	-	
			42T	27	14	
		FD-M6000-D FD-M6000-E	40T	-	-	
			42T	-	-	
		<a href="#">FD-M4100-D</a> <a href="#">FD-M4100-E</a>	36T	-	-	
				27	14	
		FD-M617-H	36T	27	15	
			38T	27	15	
	FD-M617-L	36T	27	14		
38T		27	14			
<a href="#">FD-M617-D</a> <a href="#">FD-M617-E</a>	36T	-	-			
	38T	-	-			
9	FD-M4020-M	36T	30	14		
	<a href="#">FD-M3100-M</a>	40T	30	14		
	<a href="#">FD-M3120-D</a> <a href="#">FD-M3120-E</a>	36T	30	14		
		36T	30	14		
	<a href="#">FD-M3120-M</a>	36T	30	14		

# Band type [ROAD, Gravel/Adventure]

C-057

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

Outer chaining teeth		46T	48T	50T	52T	53T	54T	55T	Chain stay angle $\theta$ (deg.)
FD-R9100	L1 (mm)	*144	-	152	156	158	160	162	61-66 *63-66
	L2 (mm)	*122	-	130	134	136	138	140	
FD-R9150-F + SM-AD91	L1 (mm)	*152	-	155	159	161	163	165	
	L2 (mm)	*122	-	127	131	133	135	137	
FD-9000	L1 (mm)	-	-	151	155	157	159	161	
	L2 (mm)	-	-	130	134	136	138	140	
FD-R8000 FD-R7000	L1 (mm)	*144	-	152	156	158	160	162	
	L2 (mm)	*122	-	130	134	136	138	140	
FD-R8050-F + SM-AD91	L1 (mm)	*152	-	155	159	161	163	165	
	L2 (mm)	*122	-	127	131	133	135	137	
FD-6800	L1 (mm)	*145	-	153	157	159	-	-	
	L2 (mm)	*123	-	131	135	137	-	-	
FD-4700	L1 (mm)	*145	*149	153	157	159	-	-	
	L2 (mm)	*123	*127	131	135	137	-	-	
FD-6870-F + SM-AD91	L1 (mm)	*152	-	160	164	166	-	-	
	L2 (mm)	*122	-	130	134	136	-	-	
FD-R3000 FD-R2000	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	-	-	-	
FD-RX815-F + SM-AD91	L1 (mm)	*153	*157	-	-	-	-	-	
	L2 (mm)	*123	*127	-	-	-	-	-	
FD-RX810-F + SM-AD91	L1 (mm)	*152	*156	-	-	-	-	-	
	L2 (mm)	*122	*126	-	-	-	-	-	
FD-RX400-F + SM-AD91	L1 (mm)	*152	*156	-	-	-	-	-	
	L2 (mm)	*122	*126	-	-	-	-	-	

### NOTE

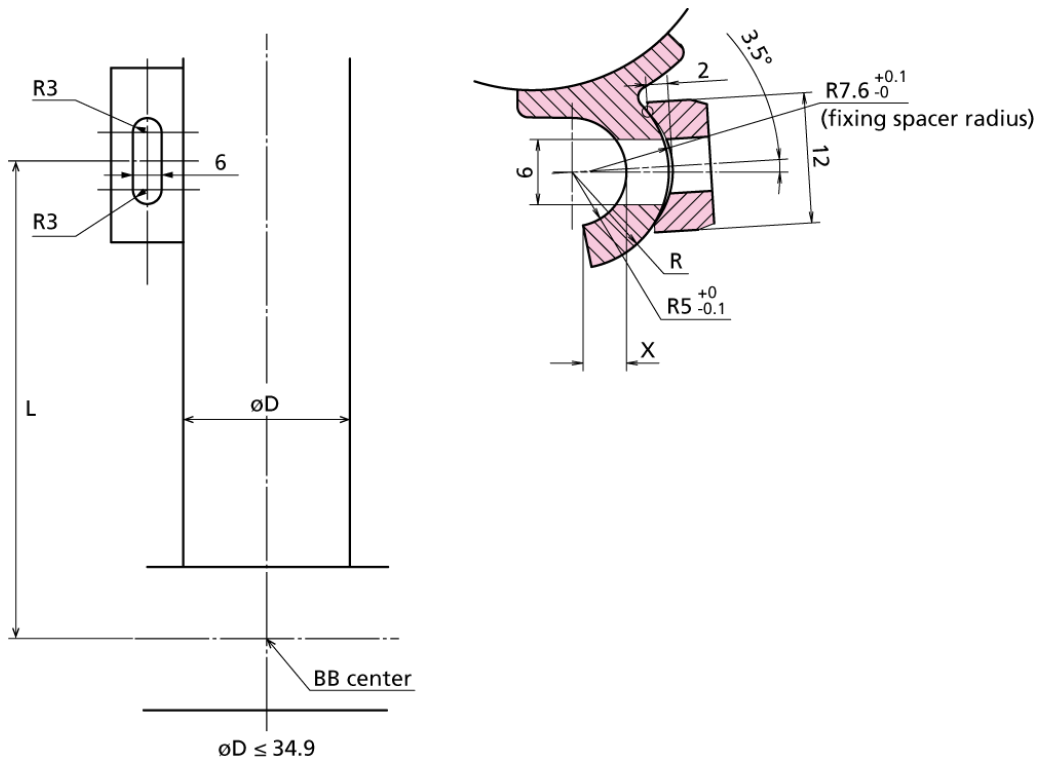
For models marked with an asterisk (\*), the recommended chain stay angle is between 63° and 66°.

## For front triple C-059

Outer chaining teeth		50T	52T	53T	Chain stay angle $\theta$ (deg.)
FD-4703	L1 (mm)	162	-	-	63-66
	L2 (mm)	139	-	-	
FD-R3030 FD-R2030	L1 (mm)	160	-	-	
	L2 (mm)	138	-	-	
FD-R353	L1 (mm)	160	-	-	
	L2 (mm)	138	-	-	
FD-A073	L1 (mm)	160	-	-	
	L2 (mm)	138	-	-	

## 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.



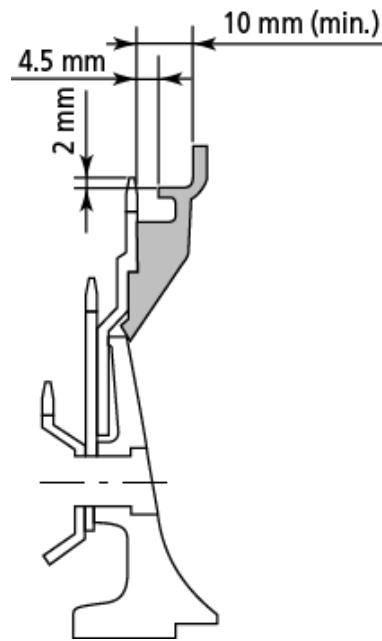
L: refer to the table of optimum dimension below.

	Outer chainring teeth	Optimum dimension L (mm)							R (mm)	X (mm)
		46T	48T	50T	52T	53T	54T	55T		
For front double	FD-R9100	-	-	141	145	147	149	151	7.6 - 8.9	-
	FD-R9150	-	-	141	145	147	149	151		
	FD-9000	-	-	141	145	147	149	151		
	FD-R8000	133	-	141	145	147	149	151		
	FD-R8050	133	-	141	145	147	149	151		
	FD-R7000 FD-6800 FD-6870 FD-4700	133	137	141	145	147	-	-	7.6 - 8.4	
	FD-CX70-T	138	142	146	150	-	-	-		
	FD-CX70-D	135	139	143	147	-	-	-		
	FD-R3000 FD-R2000	135	139	143	147	-	-	-	7.6 - 7.9	
	FD-RX810	133	137	-	-	-	-	-	7.6 - 8.9	
FD-RX815	134	138	-	-	-	-	-			
FD-RX400	133	137	-	-	-	-	-			
For front triple	FD-R3030 FD-R2030	-	-	143	-	-	-	-	7.6 - 7.9	-
	other model	-	-	148	148	-	-	-	7.6 - 8.4	

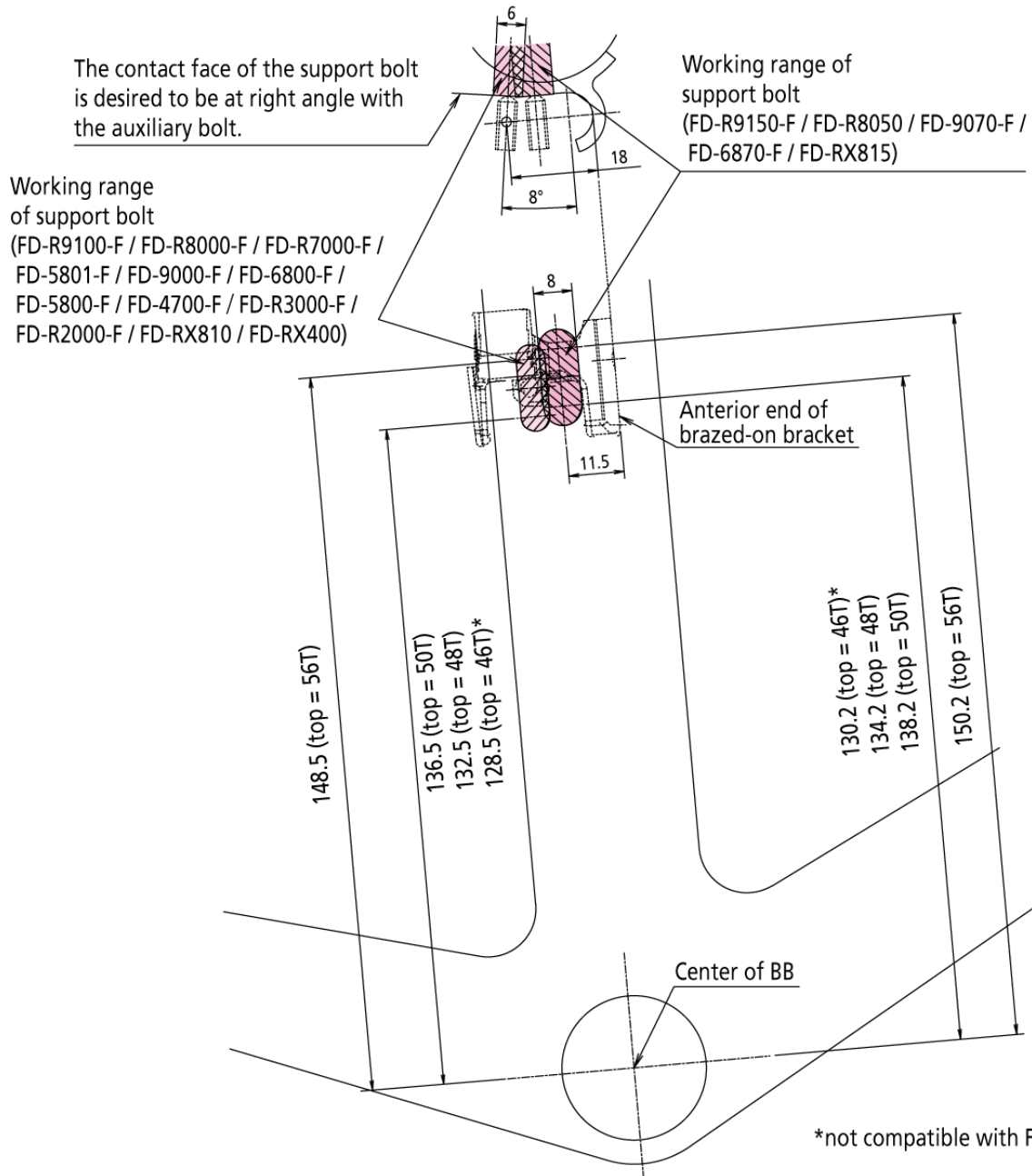
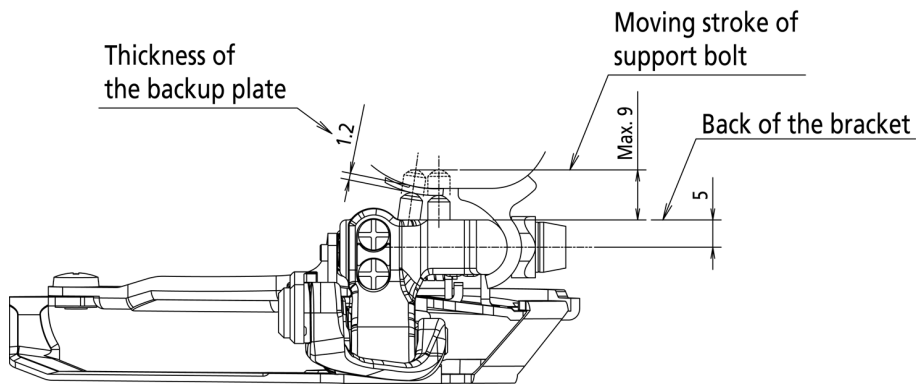
## Chain guard

C-061

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, Gravel/Adventure]



# Installation with seat tube [ROAD, Gravel/Adventure]

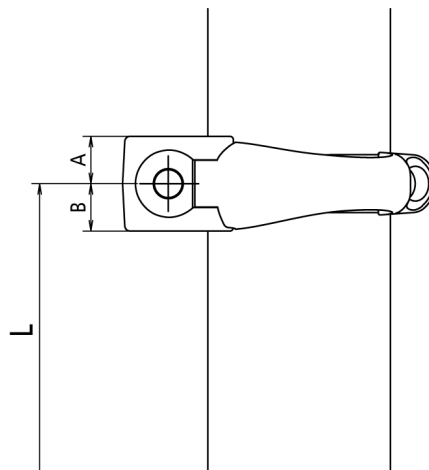
C-063

FD	Model No.	Dimension (mm)	Band type	Brazed-on type	Brazed-on + SM-AD11	Brazed-on + SM-AD15	Brazed-on + SM-AD91
Double	FD-R9100	S (ø28.6)	√*	√	-	-	√*
	FD-R8000	M (ø31.8)	√	√	-	-	√
	FD-R7000	L (ø34.9)	√	√	-	-	√
	FD-9000	S (ø28.6)	√*	√	-	-	√*
	FD-6800	M (ø31.8)	√	√	√	-	√
	FD-4700	L (ø34.9)	√	√	-	√	√
	FD-R9150	S (ø28.6)	-	√	-	-	√*
	FD-R8050	M (ø31.8)	-	√	-	-	√
	FD-6870	L (ø34.9)	-	√	-	-	√
	FD-R3000	S (ø28.6)	√*	√	-	-	√*
	FD-R2000	M (ø31.8)	√*	√	-	-	√
		L (ø34.9)	√	√	-	-	√
	FD-CX70-T	S (ø28.6)	-	√	-	-	√*
	FD-CX70-D	M (ø31.8)	-	√	√	-	√
		L (ø34.9)	-	√	-	√	√
	FD-RX810	S (ø28.6)	-	√	-	-	√
		M (ø31.8)	-	√	-	-	√
		L (ø34.9)	-	√	-	-	√
	FD-RX815	S (ø28.6)	-	√	-	-	√
		M (ø31.8)	-	√	-	-	√
		L (ø34.9)	-	√	-	-	√
FD-RX400	S (ø28.6)	-	√	-	-	√	
	M (ø31.8)	-	√	-	-	√	
	L (ø34.9)	-	√	-	-	√	
Triple	FD-5703	S (ø28.6)	√*	√	-	-	√*
	FD-4703	M (ø31.8)	√	√	√	-	√
		L (ø34.9)	√	√	-	√	√
	FD-A073	S (ø28.6)	√*	-	-	-	-
		M (ø31.8)	√*	-	-	-	-
		L (ø34.9)	√	-	-	-	-
FD-R3030	S (ø28.6)	√*	√	-	-	√*	
FD-R2030	M (ø31.8)	√*	√	-	-	√	
	L (ø34.9)	√	√	-	-	√	

\* Need adapter S or adapter M

# Adapter dimensions [ROAD]

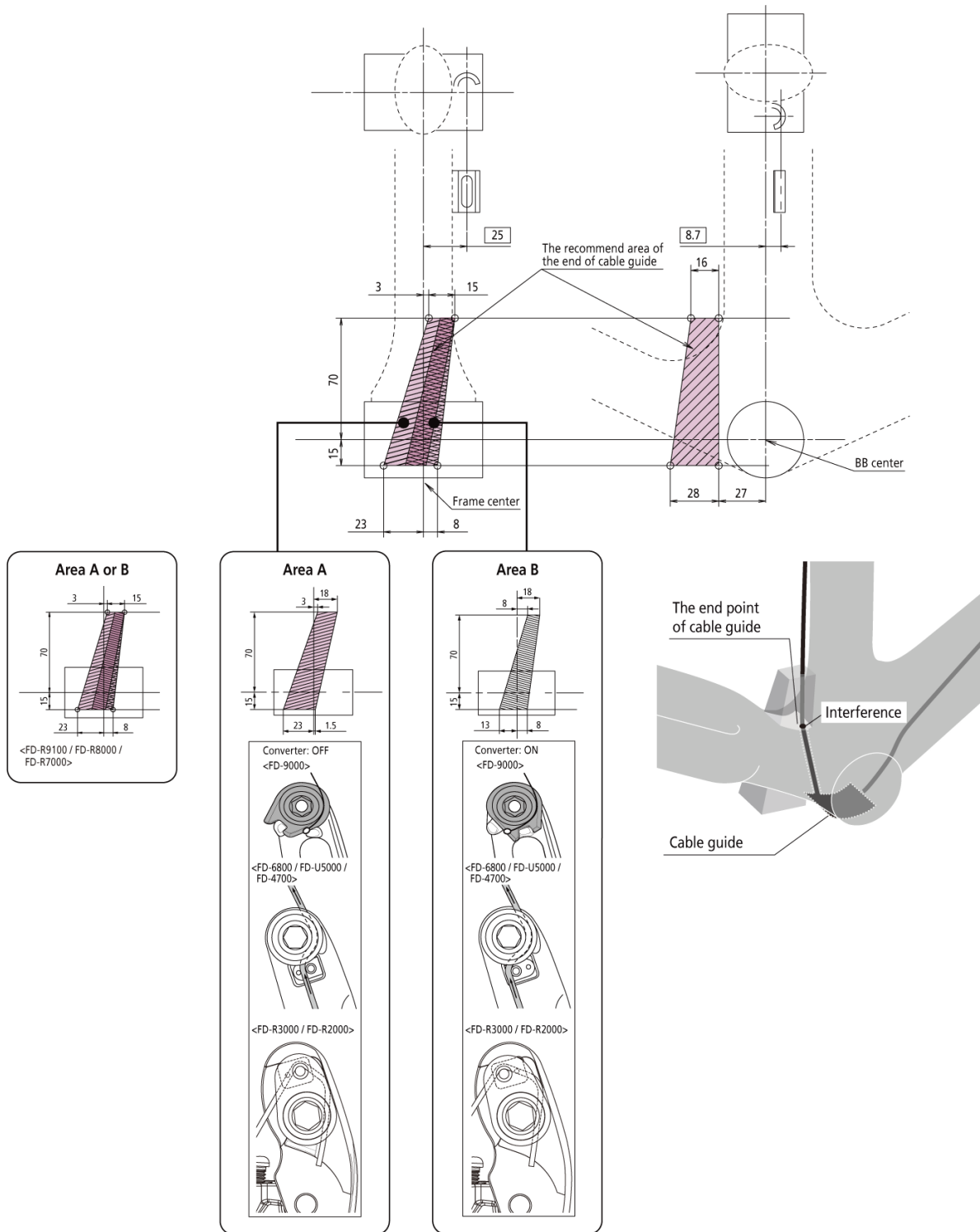
C-064



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

Brazed-on + SM-AD**	A (mm)	B (mm)
SM-AD91	9.3	9.3
SM-AD11	20.0	12.0
SM-AD15	17.5	11.0

FD-R9100 / FD-9000 / FD-R8000 / FD-6800 / FD-R7000 / FD-4700 / FD-R3000 / FD-RX810 / FD-RX400



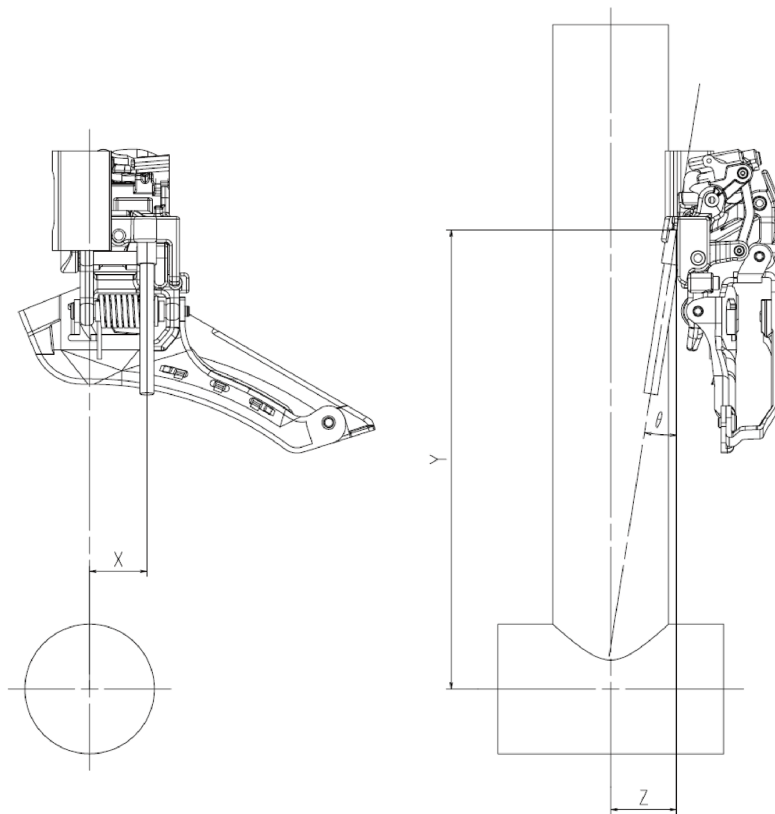
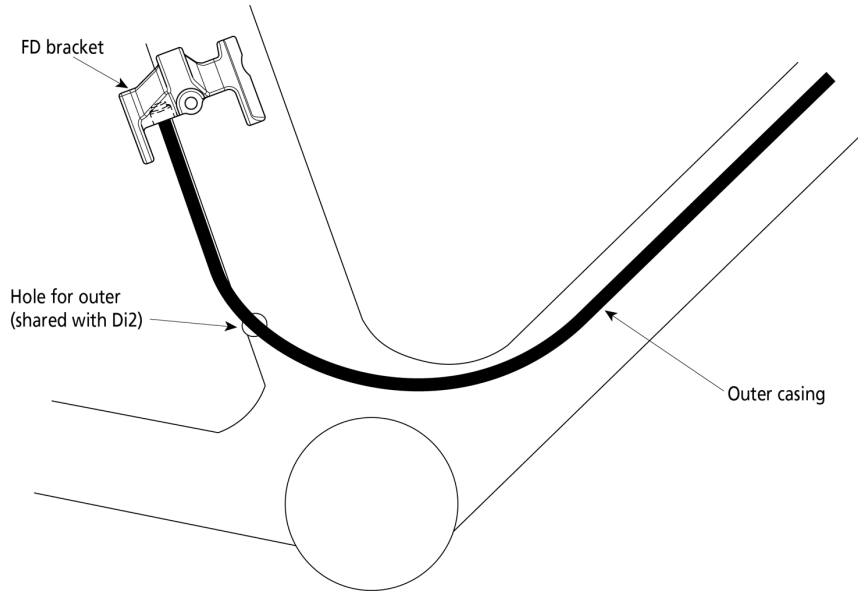
According to positions of the cable guide at indicated area.  
Choose converter: OFF or converter: ON to get proper cable route.

**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.



**FD-R9100 / FD-R8000 / FD-R7000 / FD-RX810 / FD-RX400 (with outer casing)**



**FD-R9100 / FD-R8000 / FD-R7000**

Top gear	X (mm)	Y (mm)	Z (mm)	$\theta$ (deg.)
56	17	151	20	9
55		149		
54		147		
53		145		
52		143		
50		139		
48		135		
46		131		

**FD-RX810 / FD-RX400**

Top gear	X (mm)	Y (mm)	Z (mm)	$\theta$ (deg.)
48	17	135	22.5	9
46		131		

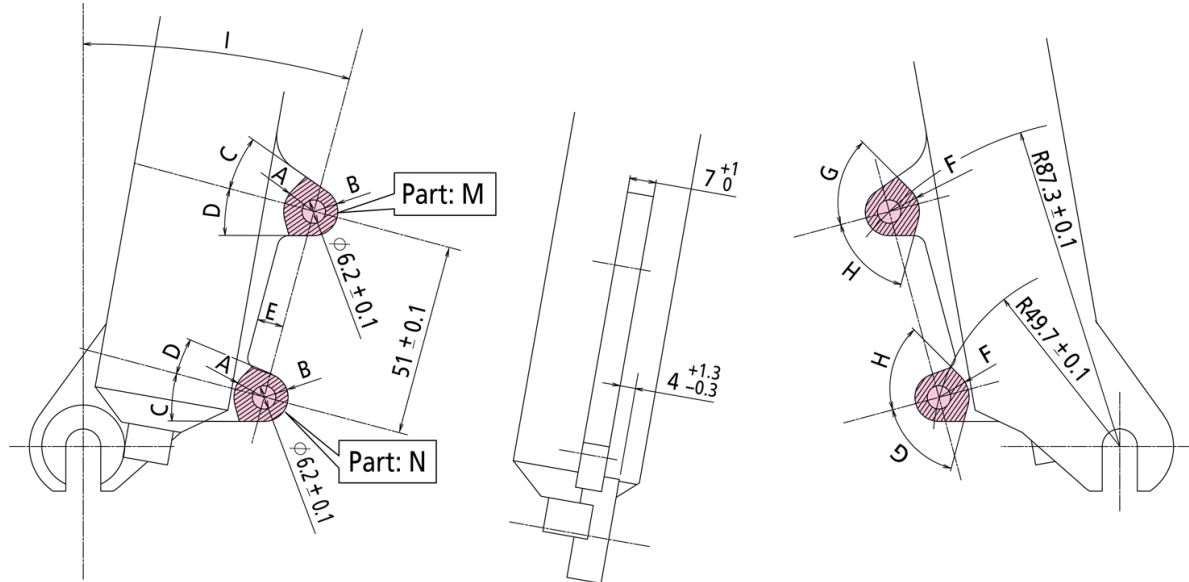
## Front disc brake mount dimensions

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

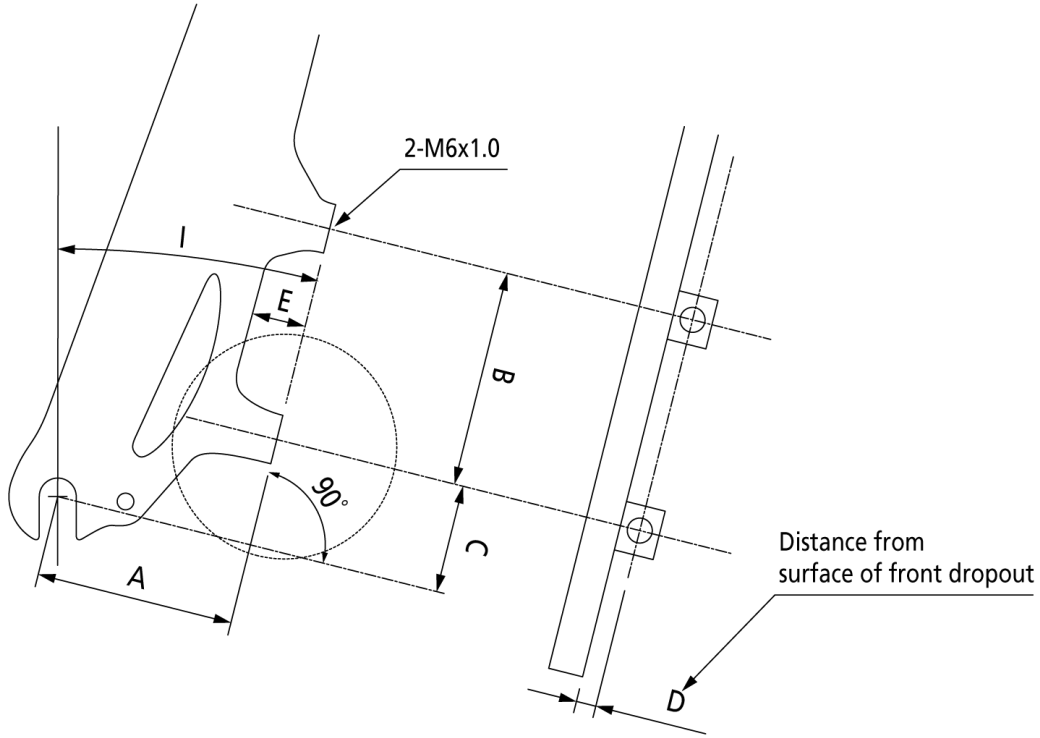


#### NOTE

- Part M and N need to be flat surface.
- Please refer to [C-077](#) for angle I.

Anti loosen method	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-M9100	8.0	Part M: 6.5 Part N: 8.0	45°	45°	0	6.0	90°	95°
	BR-M9120					2.0			
Cap type	BR-M8100	8.0	Part M: 6.5 Part N: 8.0	45°	45°	0	6.0	90°	95°
	BR-M8120					2.0			
	BR-M8000					0			
	BR-M8020					2.0			
	BR-M7100					0			
	BR-M7120					2.0			
	<a href="#">BR-M6100</a>					0			
	<a href="#">BR-M6120</a>					2.0			
	BR-M6000					0			
	BR-M820					2.0			
	BR-M375					1.5			
	BR-MT500					1.0			
	BR-MT520					2.0			
	BR-MT400					1.0			
	<a href="#">BR-MT410</a>					1.0			
	BR-MT420					2.0			
	BR-MT200					1.0			
	BR-TX805					1.5			
	BR-RS785					0			
	BR-R317					1.5			
BR-S7000	0								

**For post mount**



Anti loosen method	Model No.	Dimension				
		A (mm)	B (mm)	C (mm)	D (mm)	Min. E (mm)
Wiring type	BR-M9100*	140 mm (SS): 47.5 ± 0.1	140 mm (SS): 74.2 ± 0.1	140 mm (SS): 1.7 ± 0.1	140 mm (SS): 0.94+0.3 - 1.3	10.5
		160 mm (S): 55.9 ± 0.1	160 mm (S): 74.2 ± 0.1	160 mm (S): 6.8 ± 0.1	160 mm (S): 0.94+0.3 - 1.3	
		180 mm (M): 64.0 ± 0.1	180 mm (M): 74.2 ± 0.1	180 mm (M): 12.4 ± 0.1	180 mm (M): 0.94+0.3 - 1.3	
Cap type	BR-M9120					11.5
	BR-M8100					10.5
	BR-M8120					11.5
	BR-M8000					10.0
	BR-M8020	140 mm (SS): 47.5 ± 0.1	140 mm (SS): 74.2 ± 0.1	140 mm (SS): 1.7 ± 0.1	140 mm (SS): 0.94+0.3 - 1.3	11.5
	BR-M7100					10.5
	BR-M7120	160 mm (S): 55.9 ± 0.1	160 mm (S): 74.2 ± 0.1	160 mm (S): 6.8 ± 0.1	160 mm (S): 0.94+0.3 - 1.3	11.5
	BR-M6100					10.0
	BR-M6120					11.5
	BR-M6000	180 mm (M): 64.0 ± 0.1	180 mm (M): 74.2 ± 0.1	180 mm (M): 12.4 ± 0.1	180 mm (M): 0.94+0.3 - 1.3	10.0
	BR-M820					11.5
	BR-MT520	203 mm (L): 73.9 ± 0.1	203 mm (L): 74.2 ± 0.1	203 mm (L): 18.8 ± 0.1	203 mm (L): 0.94+0.3 - 1.3	11.5
	BR-MT410					11.5
	BR-MT420					11.5
	BR-RS785					10.0
	BR-S7000					10.0
	BR-M375*	140 mm (SS): 47.5 ± 0.1	140 mm (SS): 74.2 ± 0.1	140 mm (SS): 1.7 ± 0.1	140 mm (SS): 0.94+0.3 - 1.3	11.0
	BR-MT500*					11.5
	BR-MT400*	160 mm (S): 55.9 ± 0.1	160 mm (S): 74.2 ± 0.1	160 mm (S): 6.8 ± 0.1	160 mm (S): 0.94+0.3 - 1.3	11.5
	BR-MT200*					11.5
	BR-TX805*	180 mm (M): 64.0 ± 0.1	180 mm (M): 74.2 ± 0.1	180 mm (M): 12.4 ± 0.1	180 mm (M): 0.94+0.3 - 1.3	11.0
	BR-R317**	140 mm (SS): 47.5 ± 0.1	140 mm (SS): 74.2 ± 0.1	140 mm (SS): 1.7 ± 0.1	140 mm (SS): 0.94+0.3 - 1.3	11.0
160 mm (S): 55.9 ± 0.1		160 mm (S): 74.2 ± 0.1	160 mm (S): 6.8 ± 0.1	160 mm (S): 0.94+0.3 - 1.3		

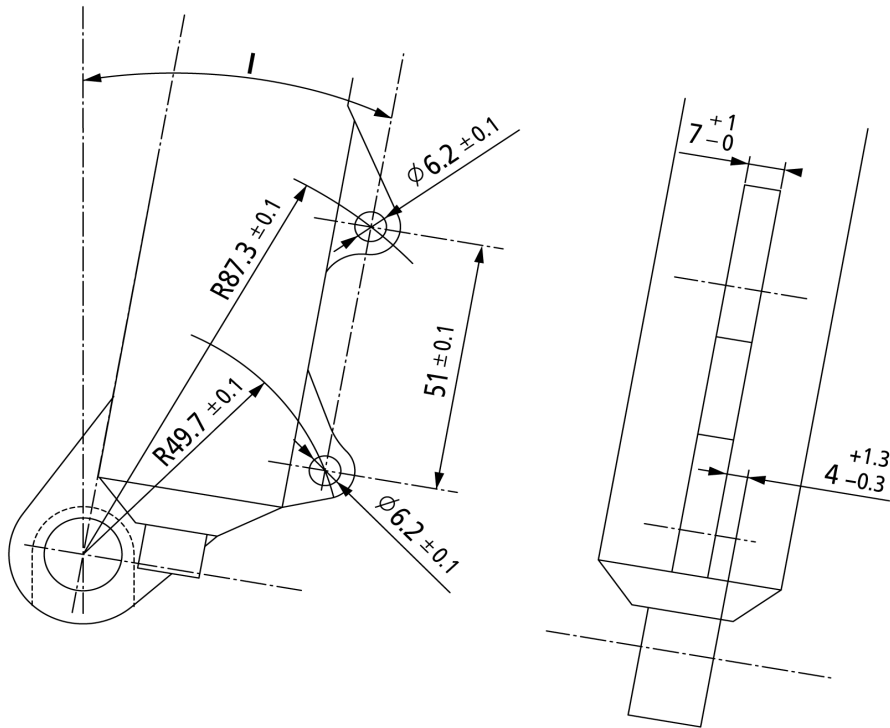
\* Not compatible with L (203 mm) size disc brake rotors.

\*\* Not compatible with L (203 mm) size and M (180 mm) size disc brake rotors.

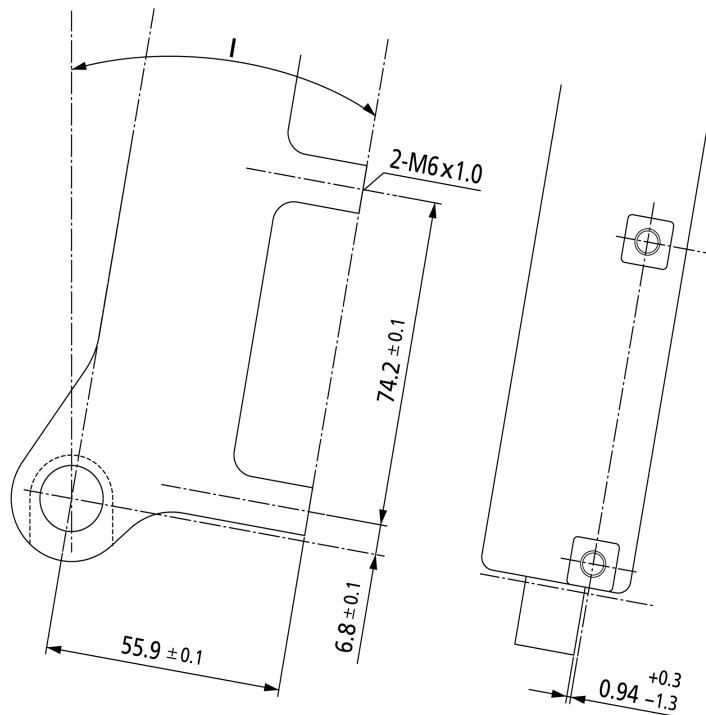
# 15 mm E-THRU type C-070

O.L.D.100mm, 110mm

For international standard mount



For post mount

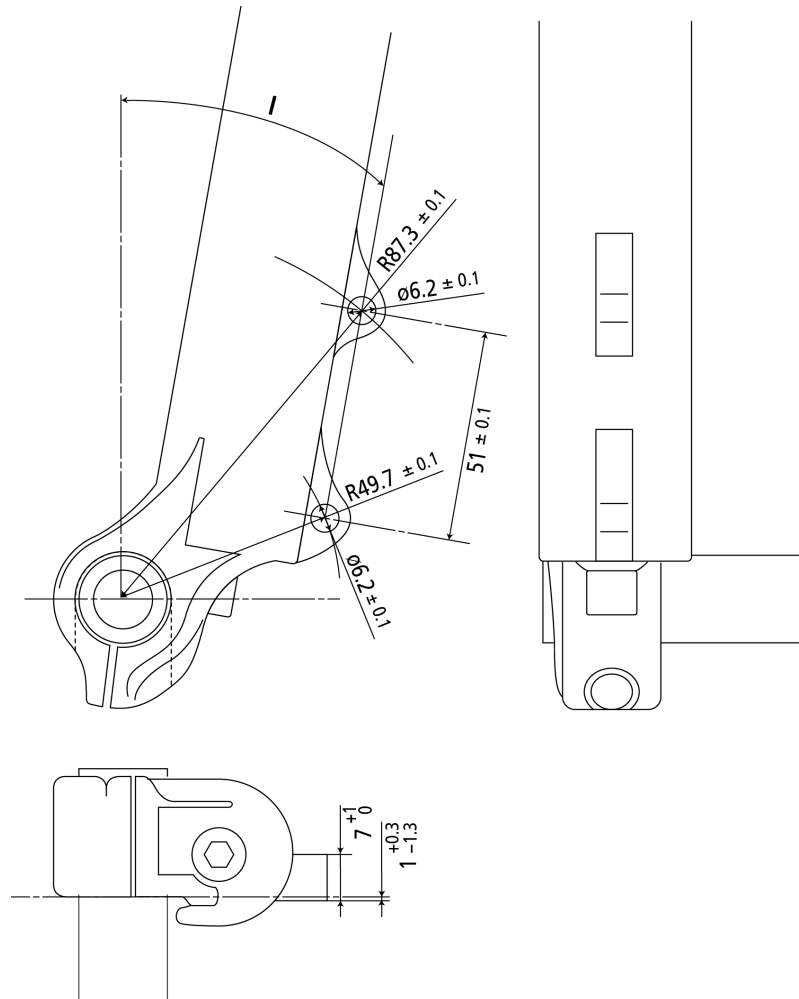


## NOTE

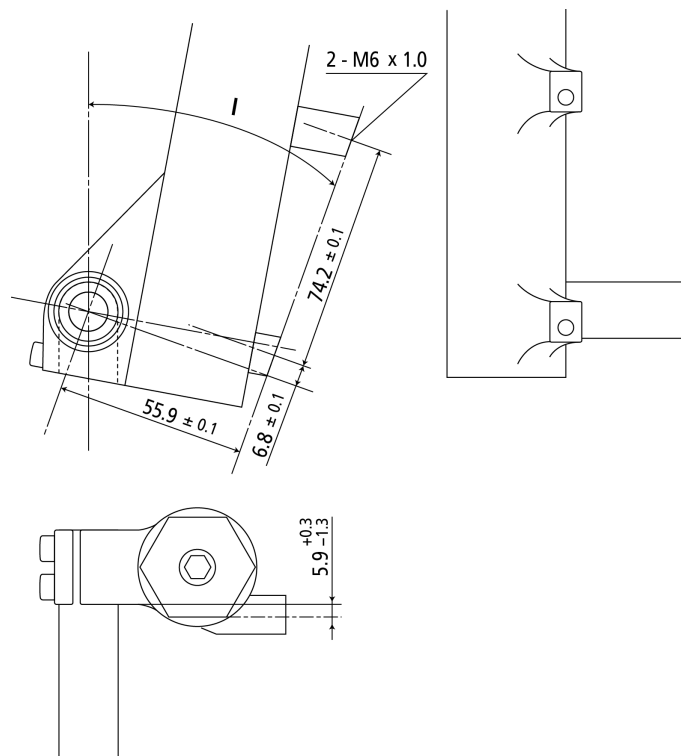
Please refer to [C-077](#) for angle I.

# 20 mm thru axle type C-071

For international standard mount

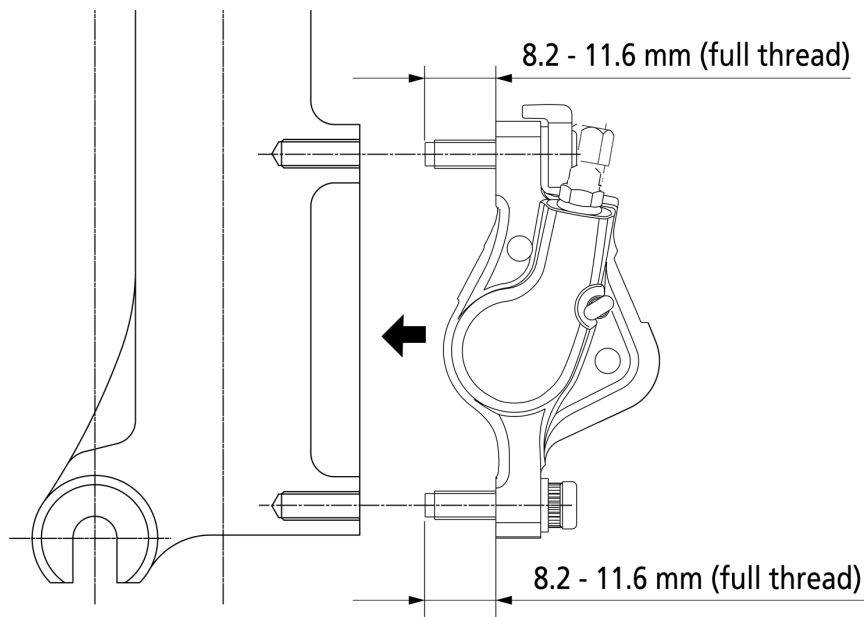


For post mount



# Fixing bolt length for post mount

C-072



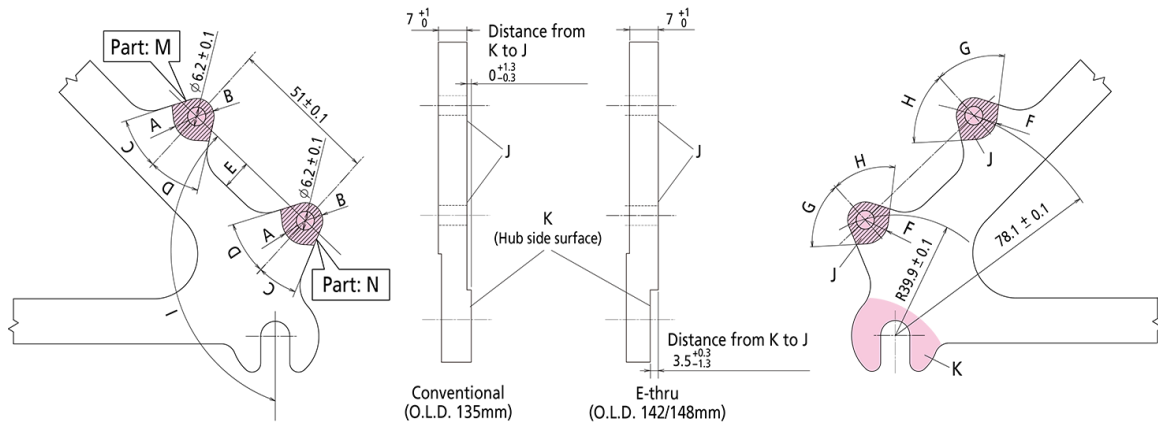
# Rear disc brake mount dimensions

C-073

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



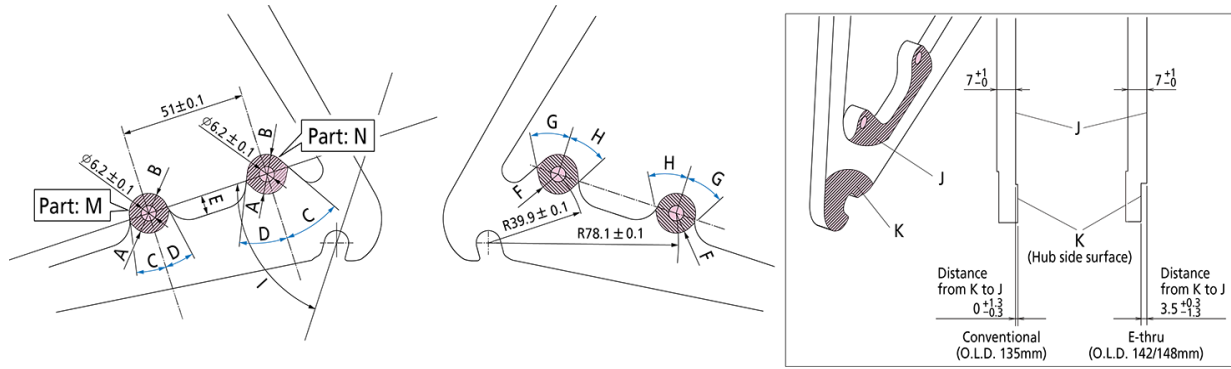
**NOTE**

- Part M and N need to be flat surface.
- Please refer to [C-077](#) for angle I.



Anti loosen method	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-M9100	8.0	Part M: 6.5 Part N: 8.0	45°	45°	-5.0	6.0	90°	95°
	BR-M9120					-3.0			
Cap type	BR-M8100	8.0	Part M: 6.5 Part N: 8.0	45°	45°	-5.5	6.0	90°	95°
	BR-M8120					-3.0			
	BR-M8000					-5.0			
	BR-M8020					-3.0			
	BR-M7100					-5.5			
	BR-M7120					-3.0			
	<a href="#">BR-M6100</a>					-6.5			
	<a href="#">BR-M6120</a>					-3.0			
	BR-M6000					-6.5			
	BR-M820					-3.0			
	BR-M375					-3.5			
	BR-MT500					-4.0			
	BR-MT520					-3.0			
	BR-MT400					-4.0			
	<a href="#">BR-MT410</a>					-4.0			
	BR-MT420					-3.0			
	BR-MT200					-4.0			
	BR-TX805					-3.5			
	BR-RS785					-5.0			
	BR-R317					-3.5			
BR-S7000	-6.5								

# Chainstay type



**NOTE**

- Part M and N need to be flat surface.
- Please refer to [C-077](#) for angle I.

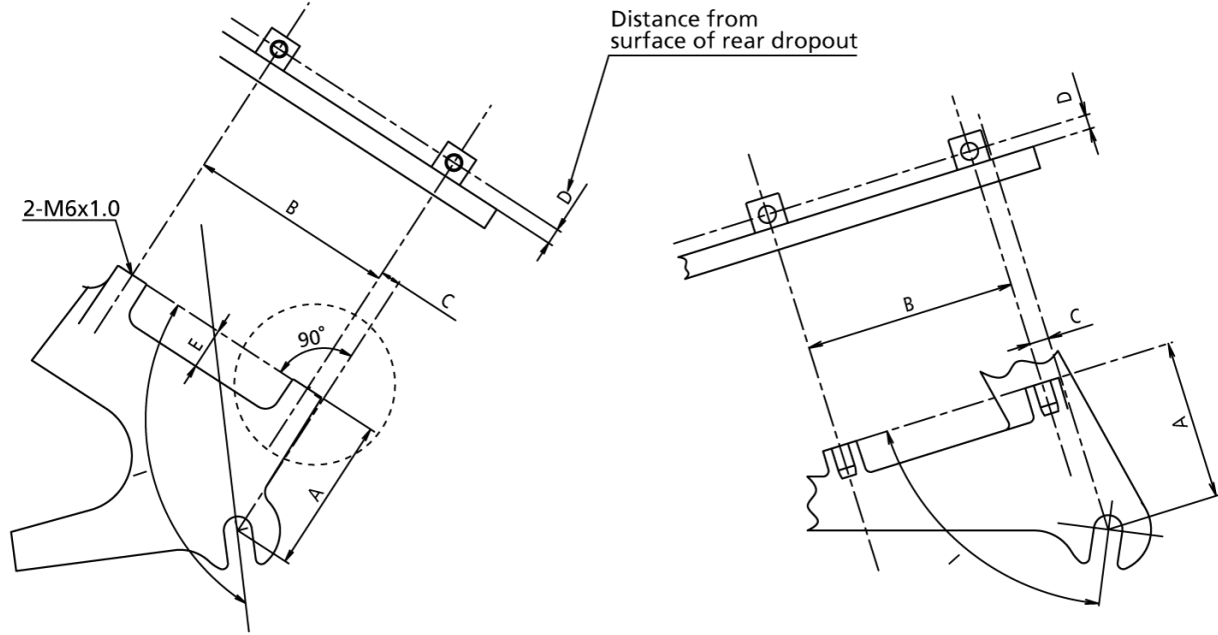


Anti loosen method	Model No.	Dimension							
		Min. A (mm)	Max. B (mm)	Max. C	Max. D	Min. E (mm)	Min. F (mm)	Min. G	Min. H
Wiring type	BR-M9100	8.0	Part M: 6.5 Part N: 8.0	45°	45°	-1.0	6.0	90°	95°
	BR-M9120					-3.0			
Cap type	BR-M8100	8.0	Part M: 6.5 Part N: 8.0	45°	45°	-5.5	6.0	90°	95°
	BR-M8120					-3.0			
	BR-M8000					-5.0			
	BR-M8020					-3.0			
	BR-M7100					-5.5			
	BR-M7120					-3.0			
	<a href="#">BR-M6100</a>					-6.5			
	<a href="#">BR-M6120</a>					-3.0			
	BR-M6000					-6.5			
	BR-M820					-3.0			
	BR-M375					-3.5			
	BR-MT500					-4.0			
	BR-MT520					-3.0			
	BR-MT400					-4.0			
	<a href="#">BR-MT410</a>					-4.0			
	BR-MT420					-3.0			
	BR-MT200					-4.0			
	BR-TX805					-3.5			
	BR-RS785					-5.0			
	BR-R317					-3.5			
BR-S7000	-6.5								



# 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



Anti loosen method	Model No.	Dimension						Min. E (mm)
		A (mm)	B (mm)	C (mm)	D (mm)			
					O.L.D. 135, 150 mm straight and BMX type	O.L.D. 142 mm E-THRU type	O.L.D. 148 mm E-THRU type	
Wiring type	BR-M9100*	140 mm (SS): 47.5 ± 0.1	140 mm (SS): 74.2 ± 0.1	140 mm (SS): 1.7 ± 0.1	140 mm (SS): 5.7 +0.3 - 1.3	140 mm (SS): 9.2 +0.3 - 1.3	140 mm (SS): 9.2 +0.3 - 1.3	10.5
		160 mm (S): 55.9 ± 0.1	160 mm (S): 74.2 ± 0.1	160 mm (S): 6.8 ± 0.1	160 mm (S): 5.7 +0.3 - 1.3	160 mm (S): 9.2 +0.3 - 1.3	160 mm (S): 9.2 +0.3 - 1.3	
		180 mm (M): 64.0 ± 0.1	180 mm (M): 74.2 ± 0.1	180 mm (M): 12.4 ± 0.1	180 mm (M): 5.7 +0.3 - 1.3	180 mm (M): 9.2 +0.3 - 1.3	180 mm (M): 9.2 +0.3 - 1.3	
Cap type	BR-M9120							11.5
	BR-M8100							10.0
	BR-M8120							11.5
	BR-M8000							10.0
	BR-M8020							11.5
	BR-M7100							10.0
	BR-M7120							11.5
	<a href="#">BR-M6100</a>	140 mm (SS): 47.5 ± 0.1	140 mm (SS): 74.2 ± 0.1	140 mm (SS): 1.7 ± 0.1	140 mm (SS): 5.7 +0.3 - 1.3	140 mm (SS): 9.2 +0.3 - 1.3	140 mm (SS): 9.2 +0.3 - 1.3	9.0
	<a href="#">BR-M6120</a>							11.5
	BR-M6000	160 mm (S): 55.9 ± 0.1	160 mm (S): 74.2 ± 0.1	160 mm (S): 6.8 ± 0.1	160 mm (S): 5.7 +0.3 - 1.3	160 mm (S): 9.2 +0.3 - 1.3	160 mm (S): 9.2 +0.3 - 1.3	9.0
	BR-M820							11.5
	BR-M375	180 mm (M): 64.0 ± 0.1	180 mm (M): 74.2 ± 0.1	180 mm (M): 12.4 ± 0.1	180 mm (M): 5.7 +0.3 - 1.3	180 mm (M): 9.2 +0.3 - 1.3	180 mm (M): 9.2 +0.3 - 1.3	11.0
	BR-MT500							11.5
	BR-MT520							11.5
	BR-MT400	203 mm (L): 73.9 ± 0.1	203 mm (L): 74.2 ± 0.1	203 mm (L): 18.8 ± 0.1	203 mm (L): 5.7 +0.3 - 1.3	203 mm (L): 9.2 +0.3 - 1.3	203 mm (L): 9.2 +0.3 - 1.3	11.5
	<a href="#">BR-MT410</a>							11.5
	BR-MT420							11.5
	BR-MT200							11.0
BR-TX805							11.0	
BR-RS785							10.0	
BR-R317							11.0	
BR-S7000							9	

\* Not compatible with L (203 mm) size disc brake rotors.

# Angle of front/rear dropout (angle I)

C-077

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

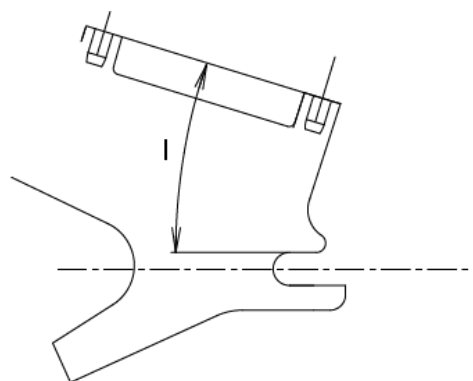
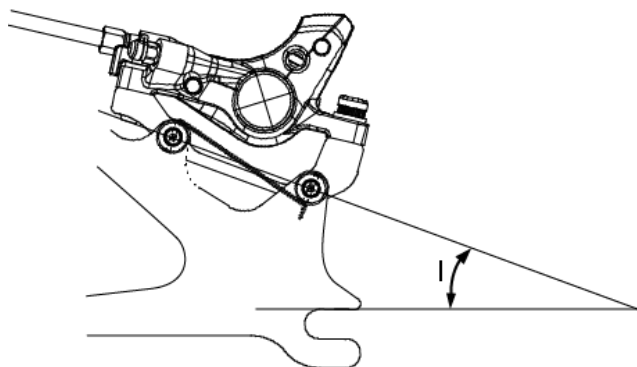
	Mount Type	Disc Brake Rotor Size	Min. Angle I		Max. Angle I	
			International standard mount	Post mount	International standard mount	Post mount
Front	-	140 - 203 mm	-	-	24° *	17°
	Seat stay type		-	-	201°	197°
Rear	Chainstay type		56°	49°	- **	- **
	BMX rear dropout ***	160 - 203 mm	-	-	24°	17°
		140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

\* Not compatible with 140 mm disc brake rotor

\*\* For chainstay type, the max. side does not need to be considered.

\*\*\* Angle of BMX rear dropout

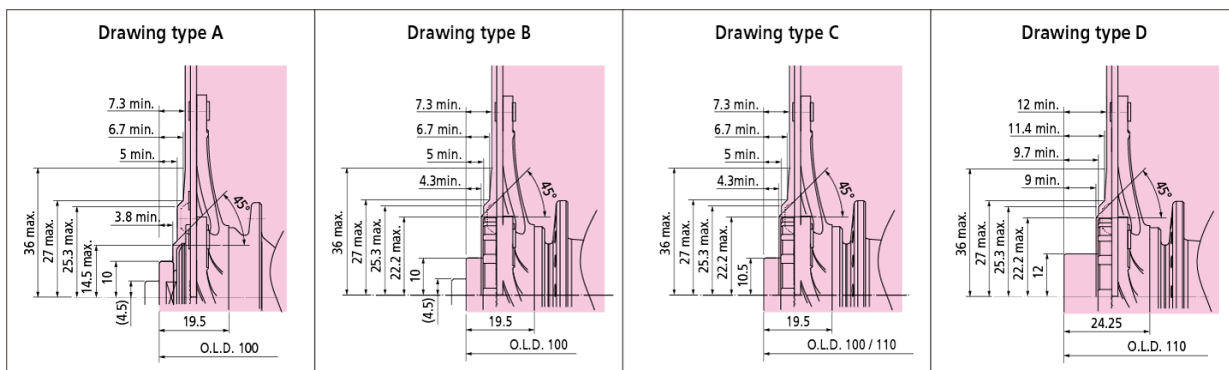
## BMX rear dropout



# Dimensions of disc brake rotor and hub

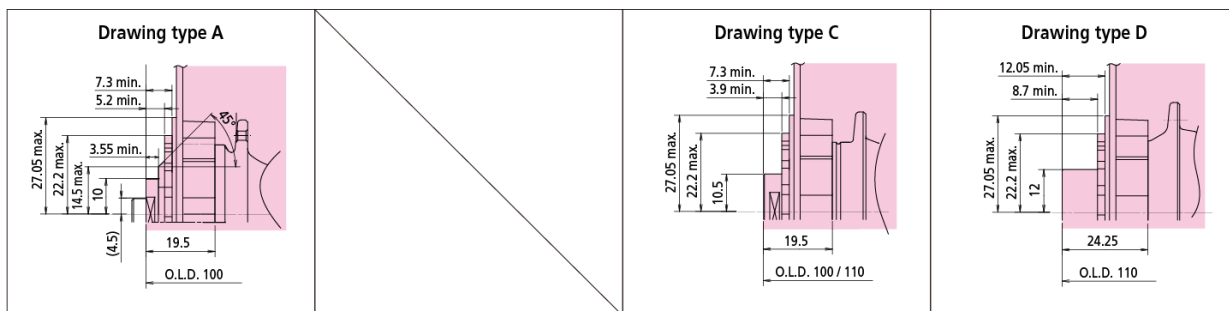
The dimensions of SHIMANO disc brake rotor and hub are shown below.  
 There are 4 types of dimensions depending on disc brake rotor and hub spec combination.  
 Please verify that fork dimensions will not cause interference with disc brake rotor and hub.

Fork Type		QR		12 mm E-THRU		15 mm E-THRU (O.L.D.: 100 mm)		15 mm E-THRU (O.L.D.: 110 mm)		20 mm E-THRU (O.L.D.: 110 mm)	
Hub spec.	Axle diameter	QR (9)	QR (9)	12		15		15		20	
	Thru axle	-	-	✓		✓		✓		✓	
	O.L.D.	100	100	100		100		110		110	
Rotor spec. (fixation)	6-bolt	✓	-	-		✓		✓		✓	
	CENTER LOCK	Internal serration	✓	-	✓	-	-		-		
		Internal & External serration (SM-RT30/SM-RT10 type)	-	✓	-	✓	✓		✓		
		External serration	-	✓	-	✓	✓		✓		
Drawing type		A	B	A	C	C		C		D	



Disc brake rotor / hub product area from hub fixing position

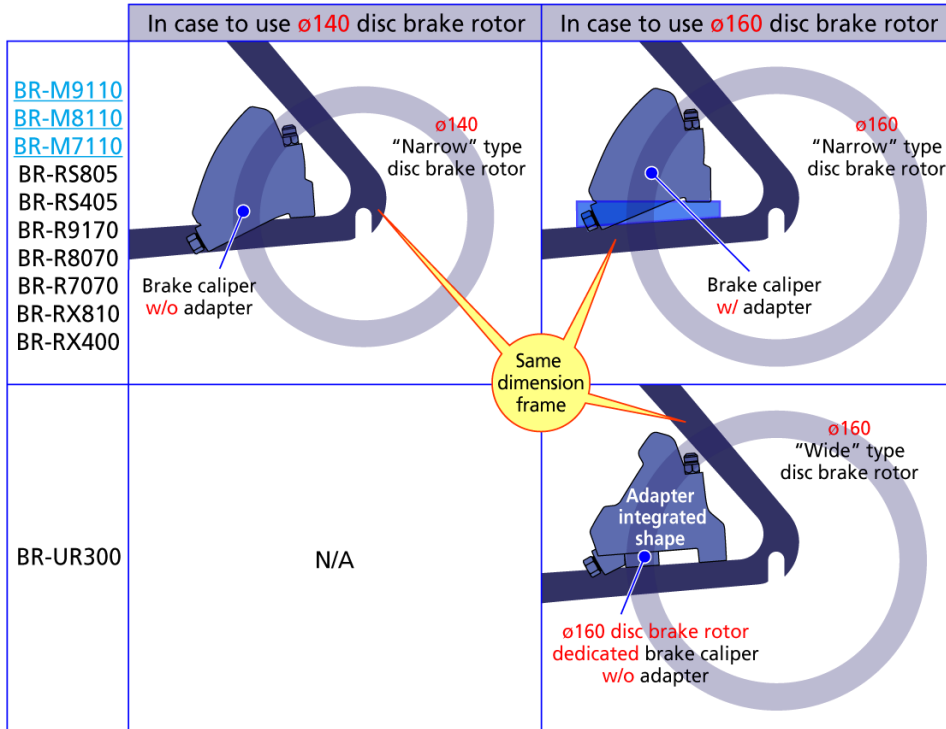
## SM-RTAD05



Disc brake rotor / hub product area from hub fixing position

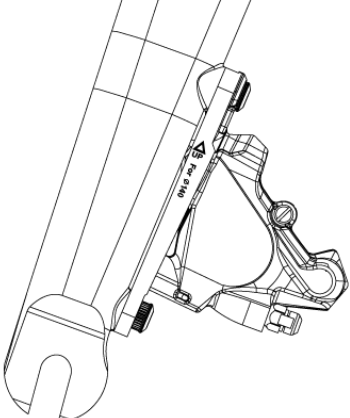
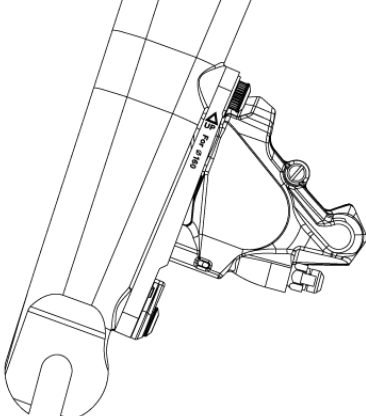
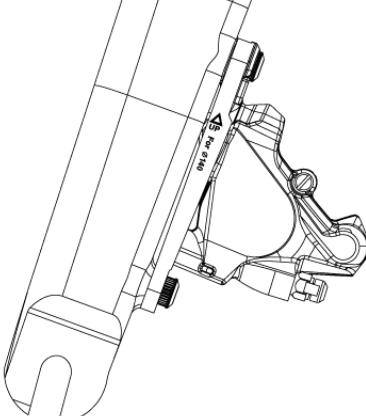
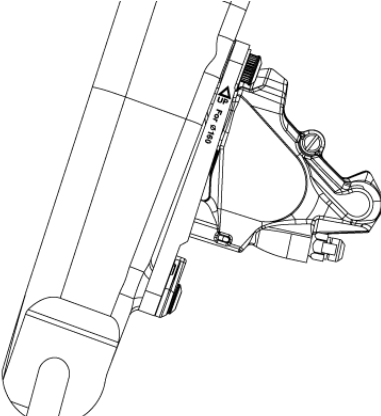
# Frame adaption of rear brake caliper

All combinations of disc brake rotors and brake calipers compatible with one frame (rear triangle) dimension.



## Flat mount installation type C-607

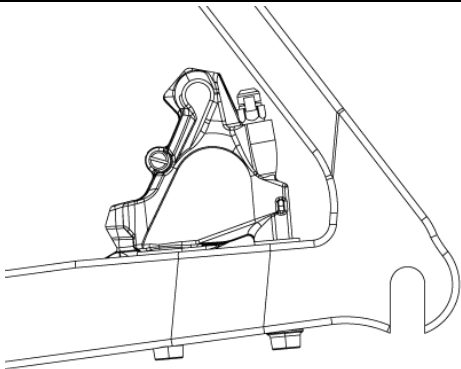
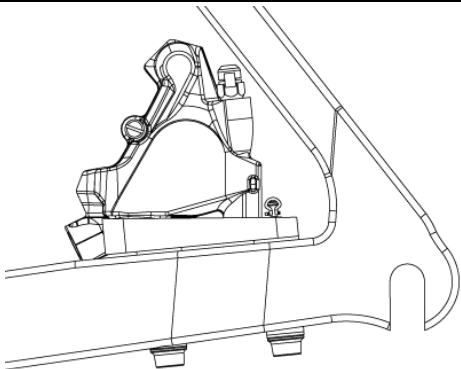
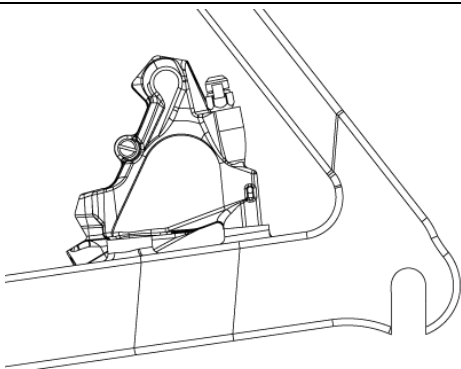
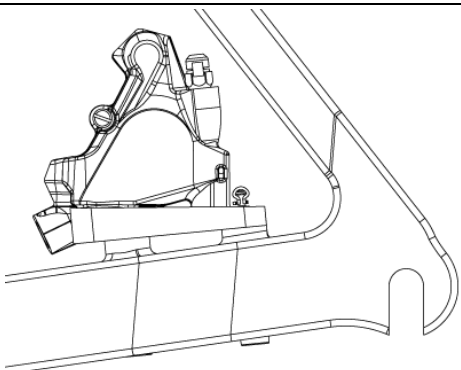
### Front

Dimension type	Disc brake rotor size	Installation of flat mount disc brake caliper	
F140/160	140 mm *	w/ mount bracket (For ø140 mm)	
	160 mm	w/ mount bracket *** (For ø160 mm)	
F160/180	160 mm *	w/ mount bracket (For ø140 mm)	
	180 mm	w/ mount bracket *** (For ø160 mm)	

\* Not adapted with BR-UR300

\*\*\* No need bracket or adapter for BR-UR300

## Rear

Dimension type	Disc brake rotor size	Installation of flat mount disc brake caliper	
R140/160	140 mm *	Direct mount	
	160 mm	w/ adapter *** (ISMMAR160DDA)	
R160/180	160 mm *	Direct mount	
	180 mm **	w/ adapter *** (ISMMAR160DDA)	

\* Not adapted with BR-UR300

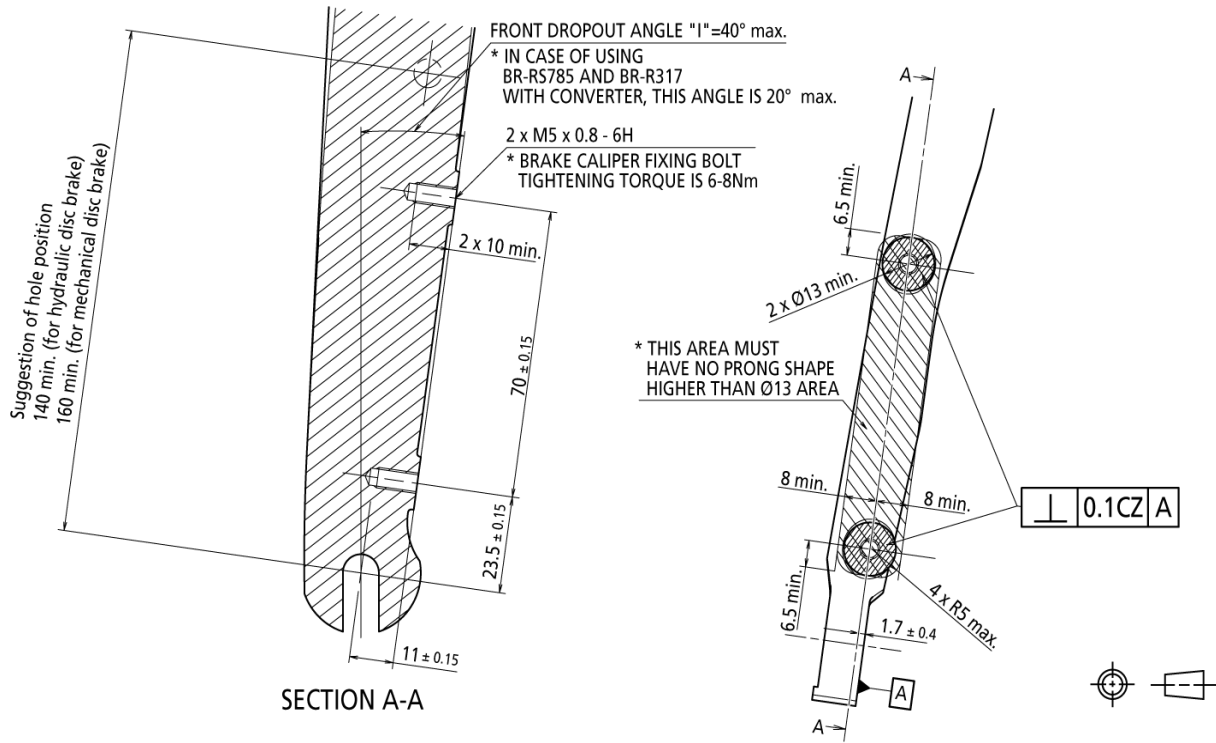
\*\* Not adapted with BR-R9170

\*\*\* No need bracket or adapter for BR-UR300

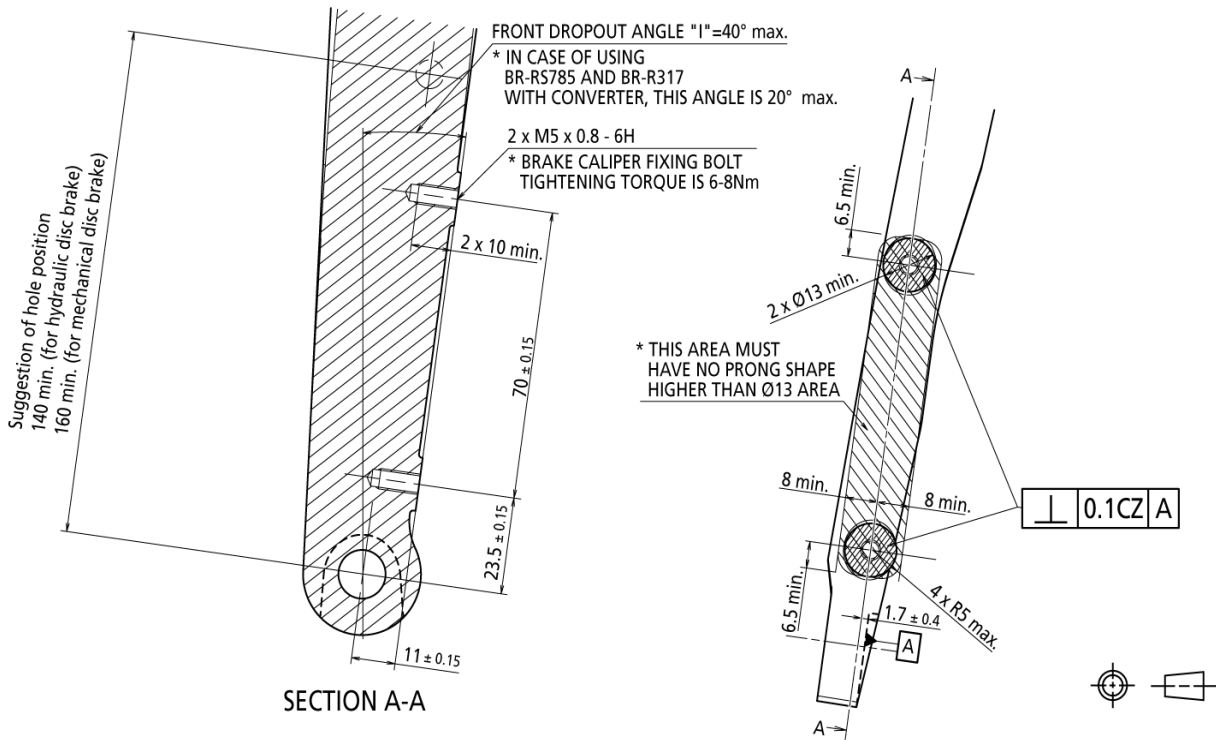
# Front mount dimensions for F140/160 (for $\varnothing 140/160$ mm disc brake rotor)

C-079

## QR type



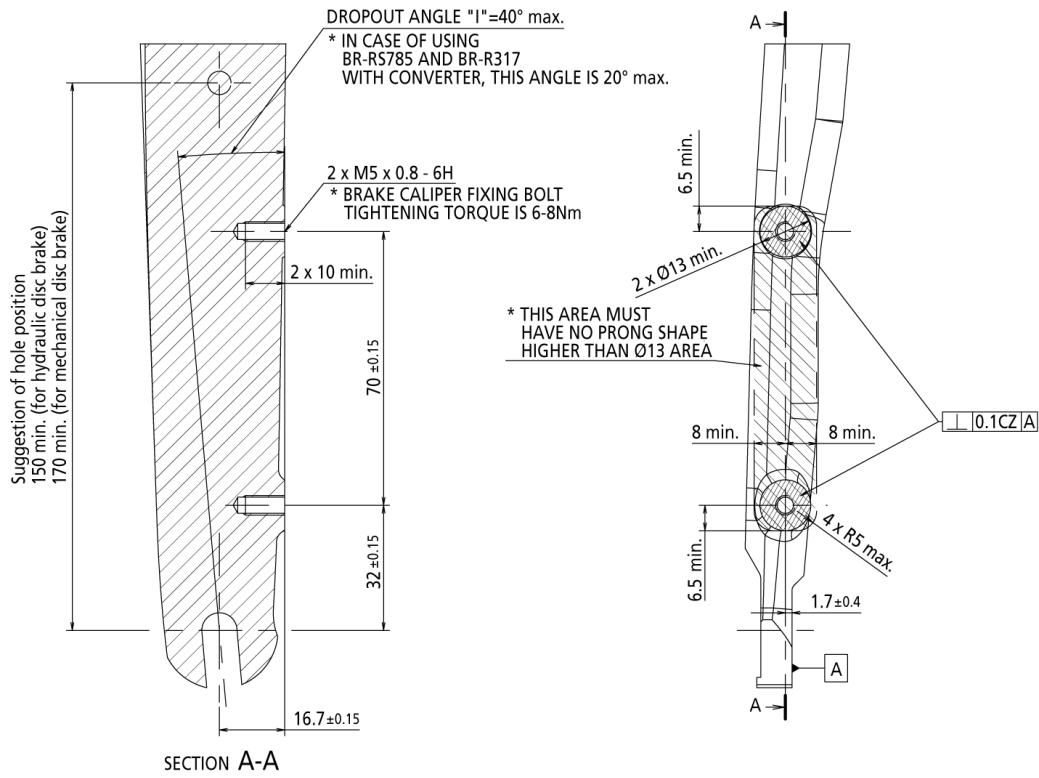
## 12 mm E-THRU type



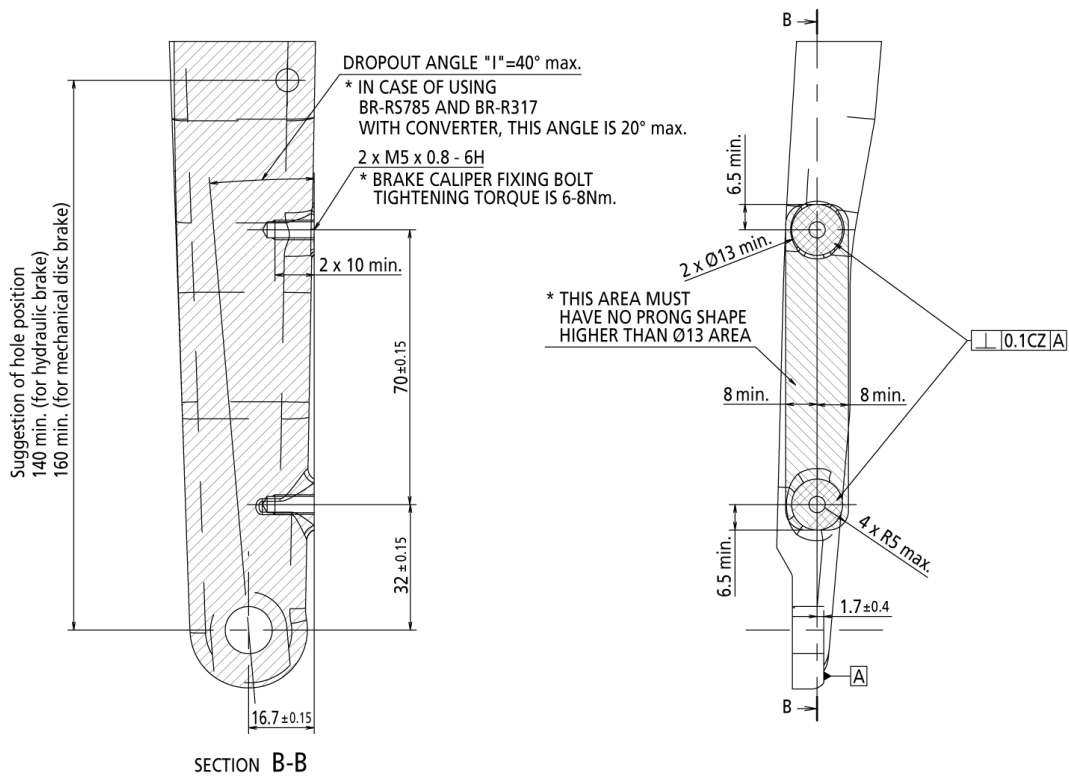
# Front mount dimensions for F160/180 (for $\varnothing 160/180$ mm disc brake rotor)

C-598

## QR type



## 12 mm E-THRU type





## Compatibility of disc brake caliper and disc brake rotor

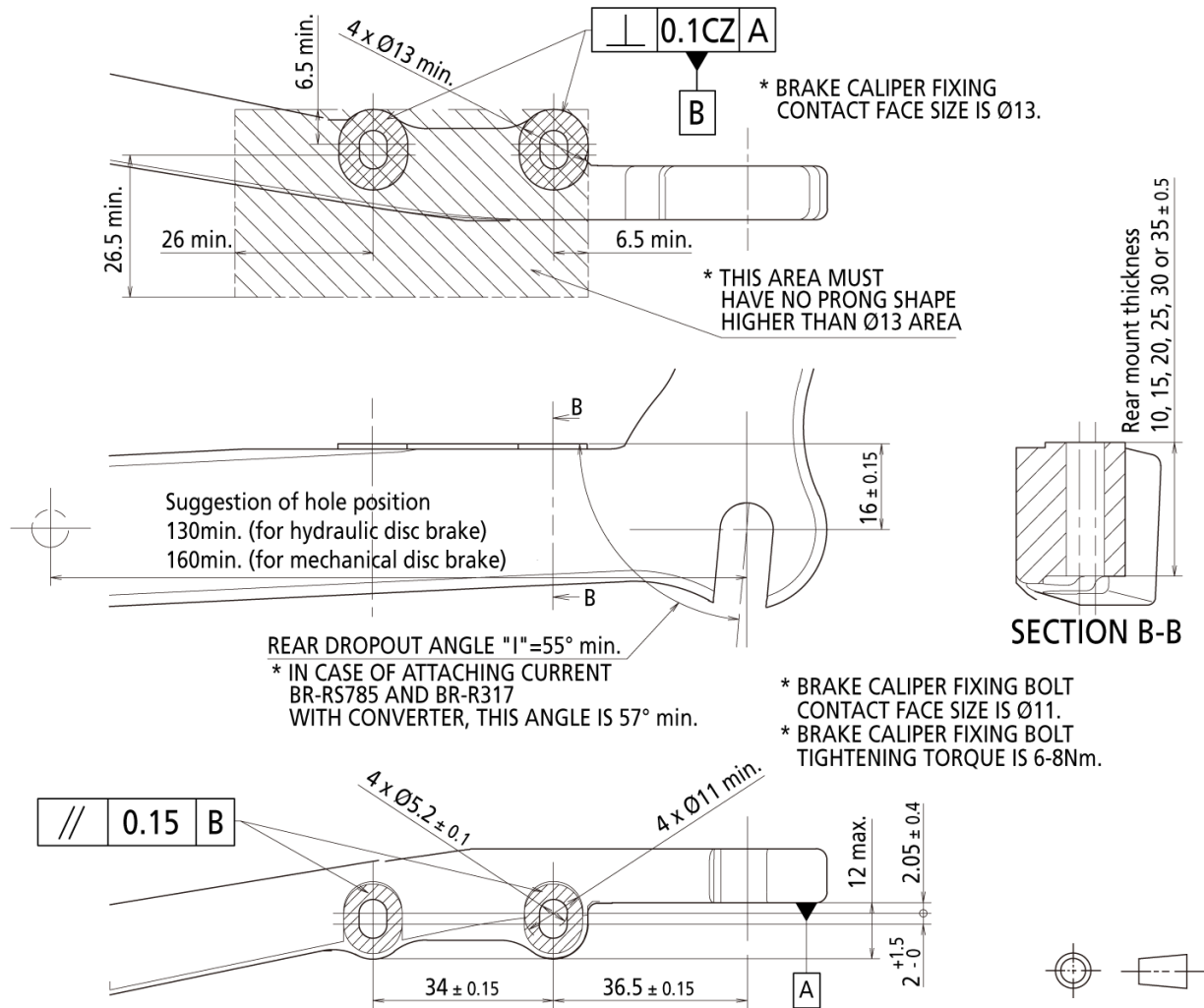
Frame for F160/180	Disc brake rotor	
	ø180 mm front	ø160 mm front
BR-R9170	-	✓
BR-R8070	✓	✓
BR-R7070	✓	✓
BR-4770	✓	✓
BR-RS405	✓	✓
BR-RS305	✓	✓
BR-RX810	✓	✓
BR-RX400	✓	✓
BR-UR300 *	✓	-

\* No need mount bracket

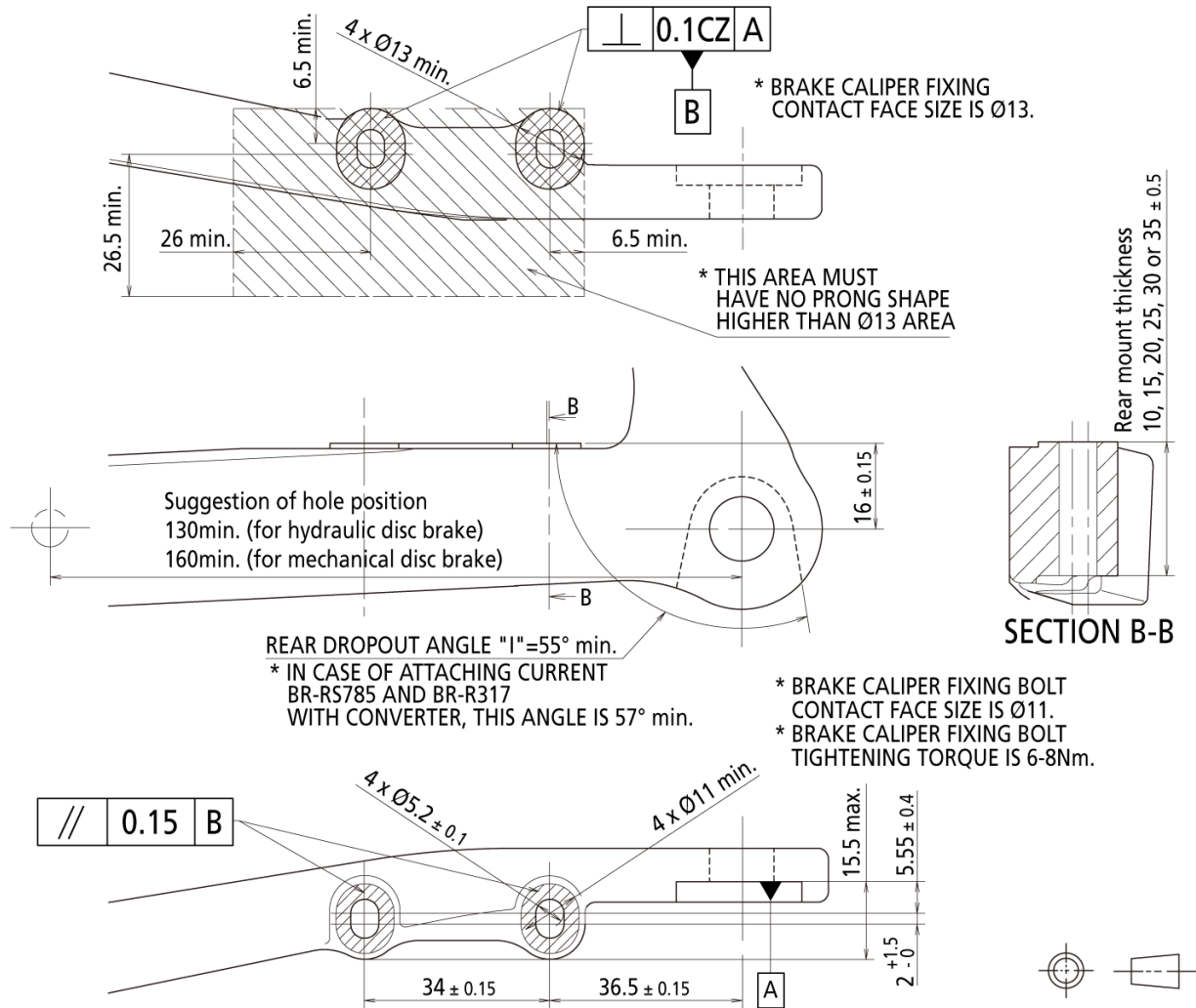
## Rear mount dimensions for R140/160 (for ø140/160 mm disc brake rotor)

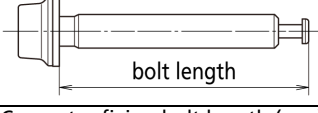
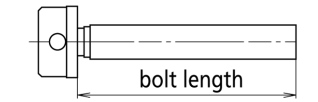
C-080

QR type



## 12 mm E-THRU type



Rear mount thickness (mm)		10	15	20	25	30	35
Fixing bolt length	Flat mount fixing bolt length (mm)  bolt length	23.2	28.2	33.2	38.2	43.2	48.2
	Converter fixing bolt length (mm)  bolt length	16.8	28.2	26.8	31.8	36.8	41.8

### NOTE

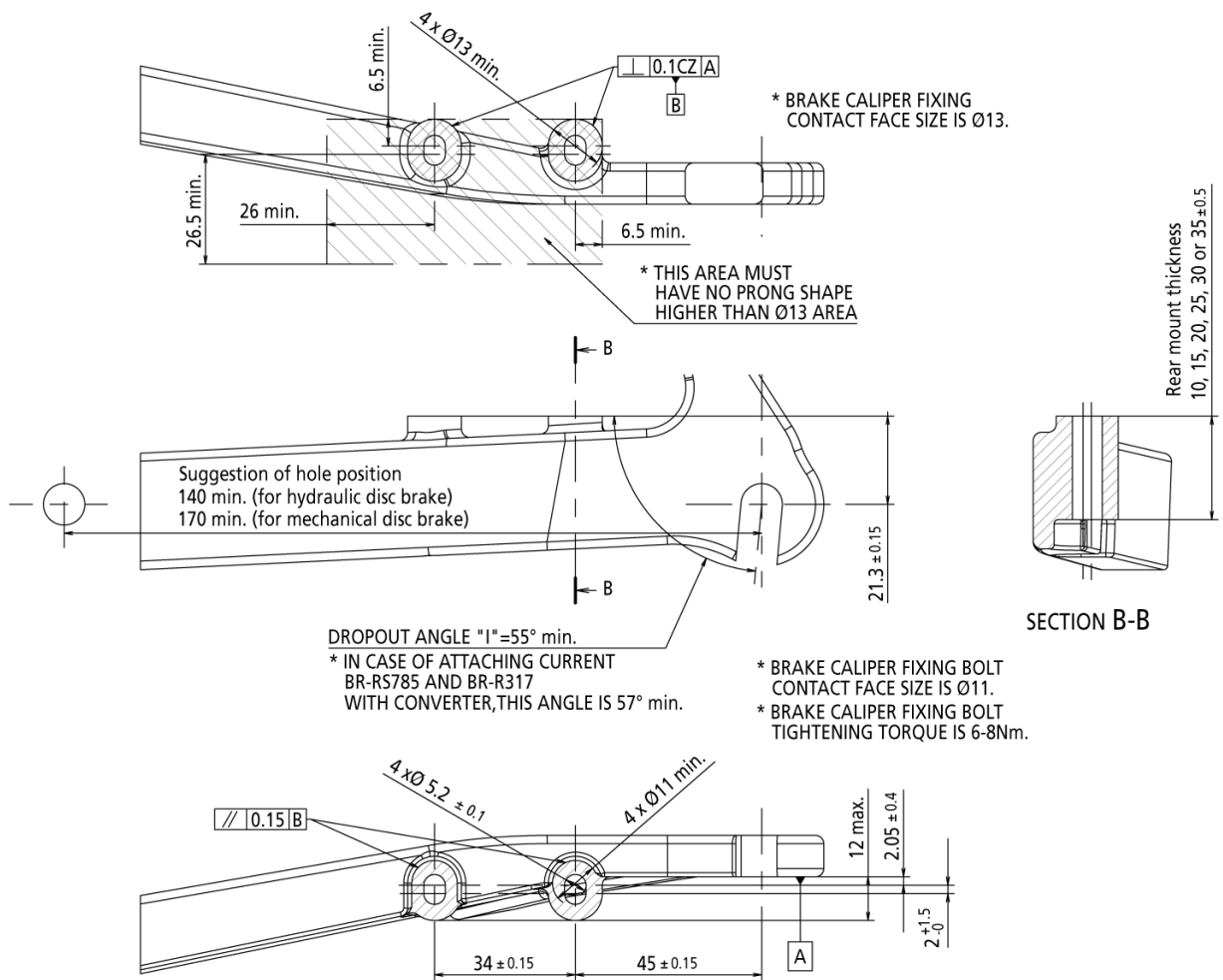
Please check in advance with the bicycle manufacturer or supplier in regards to the influence of heat generated by the disc brake on performance and quality, such as the strength of the frame, under actual usage conditions.

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.

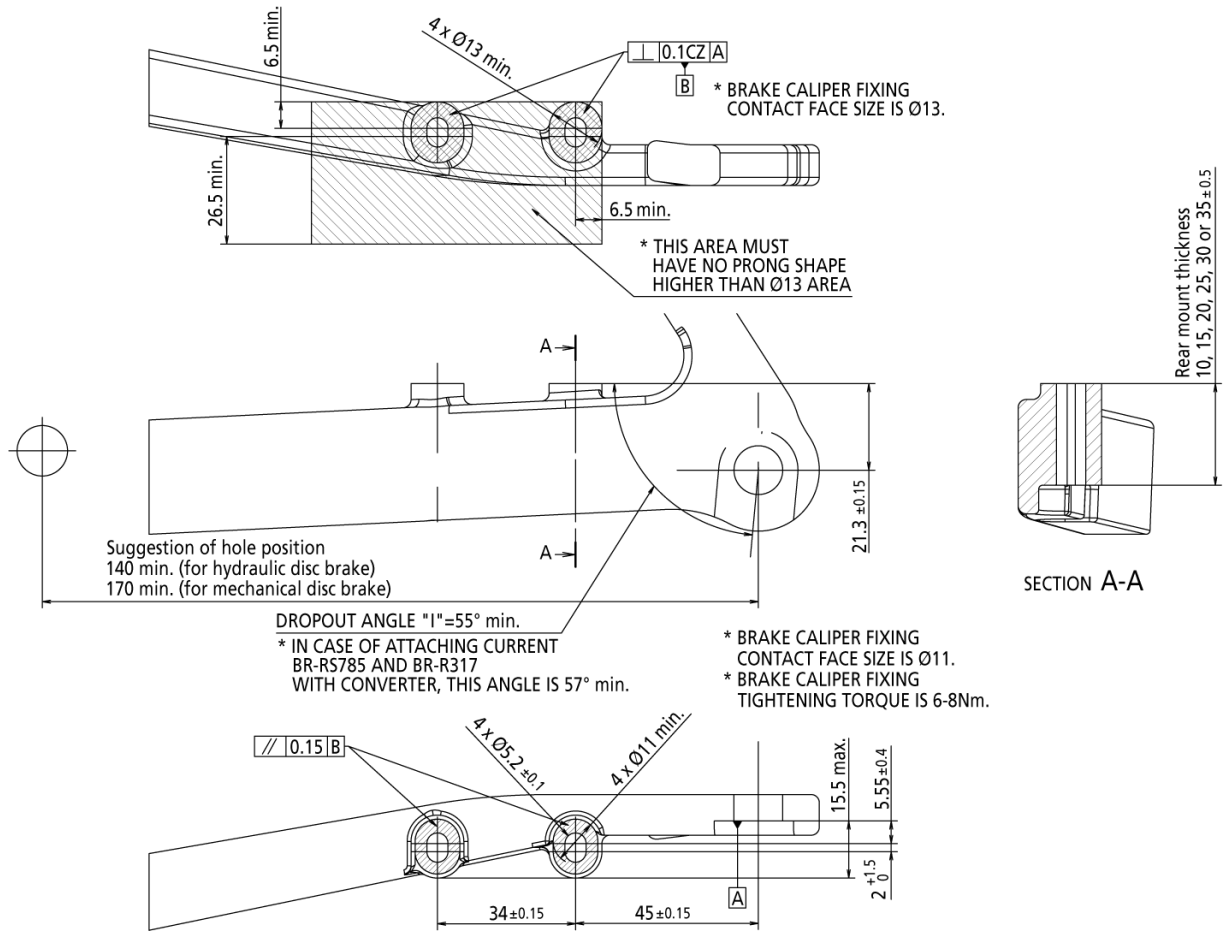
# Rear mount dimensions for R160/180 (for $\varnothing 160/180$ mm disc brake rotor)

C-599

QR type



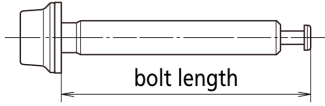
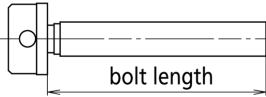
# 12 mm E-THRU type



## Compatibility of disc brake caliper and disc brake rotor

Frame for R160/180	Disc brake rotor	
	ø180 mm rear	ø160 mm rear
BR-R9170	-	✓
BR-R8070	✓	✓
BR-R7070	✓	✓
BR-4770	✓	✓
BR-RS405	✓	✓
BR-RS305	✓	✓
BR-RX810	✓	✓
BR-RX400	✓	✓
BR-UR300 *	✓	-
BR-M9110	-	✓
BR-M8110	✓	✓
BR-M7110	✓	✓

\* No need mount adapter

Rear mount thickness (mm)		10	15	20	25	30	35
Fixing bolt length	Flat mount fixing bolt length (mm) 	23.2	28.2	33.2	38.2	43.2	48.2
	Converter fixing bolt length (mm) 	16.8	28.2	26.8	31.8	36.8	41.8

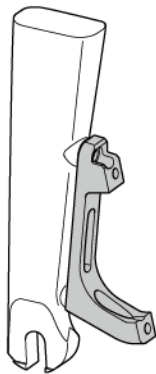
### NOTE

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.

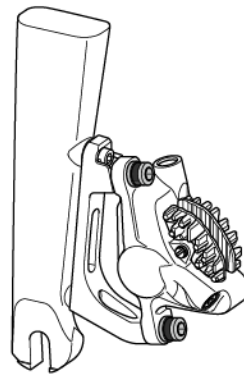
# Installation of the converter for flat mount

C-081

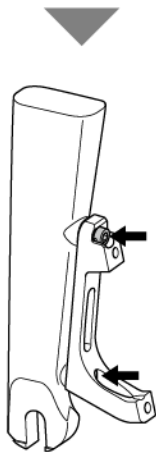
## FRONT MOUNT for $\varnothing 140$ , $\varnothing 160$ and $\varnothing 180$ disc brake rotor C-082



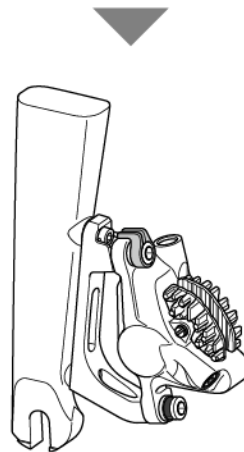
Installation of the converter.



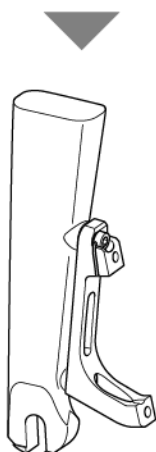
Adjustment of the alignment of the brake caliper to the disc brake rotor, and securing the brake caliper.



Securing the converter.

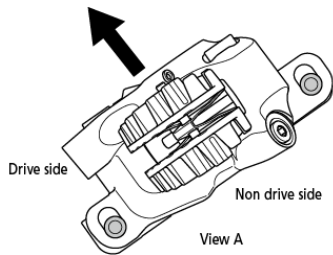
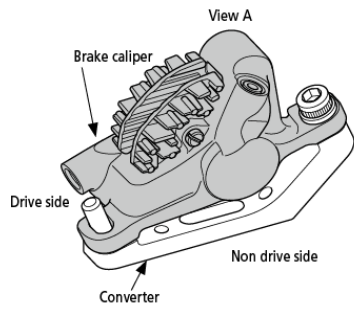


Securing the snap retainers.

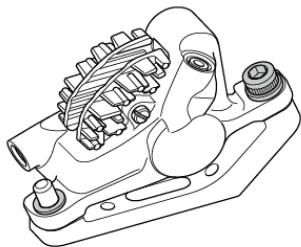


Installation of the wire.

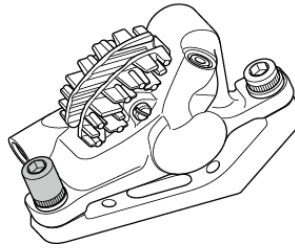
**8 REAR MOUNT for  $\varnothing 140$  disc brake rotor (for  $\varnothing 140/160$  Frame) C-083**



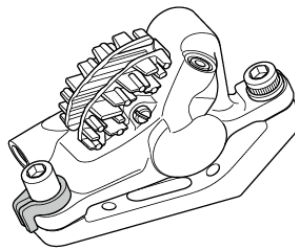
Installation of the brake caliper and converter  
Bring the brake caliper to the drive side.



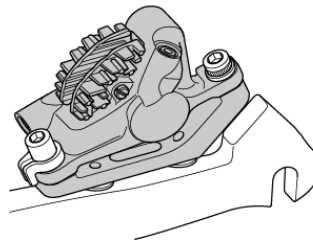
Installation of the brake caliper fixing bolt and washers



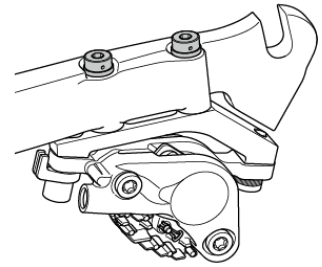
Installation of the brake caliper fixing nut



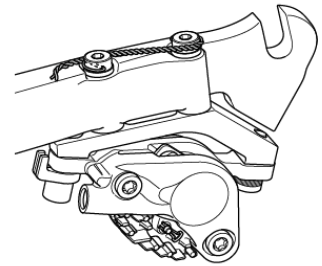
Installation of the snap retainer



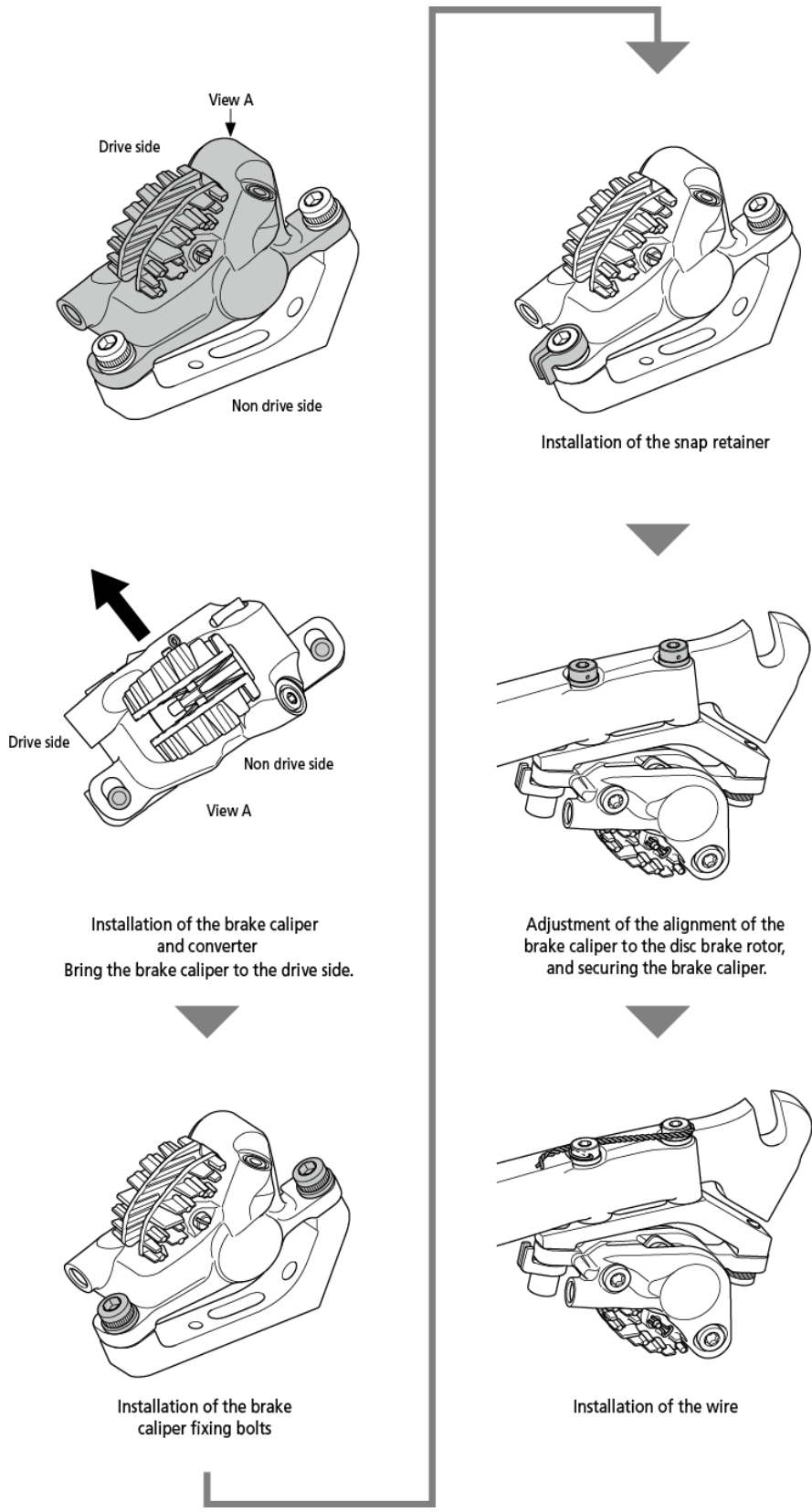
Installation of the brake caliper



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



Installation of the wire



## Compatibility between brake caliper and caliper mount

C-476

	Post Mount type Brake Caliper	Flat Mount type Brake Caliper
Post Mount Frame	✓	-
Flat Mount Frame	✓ (with Converter)	✓

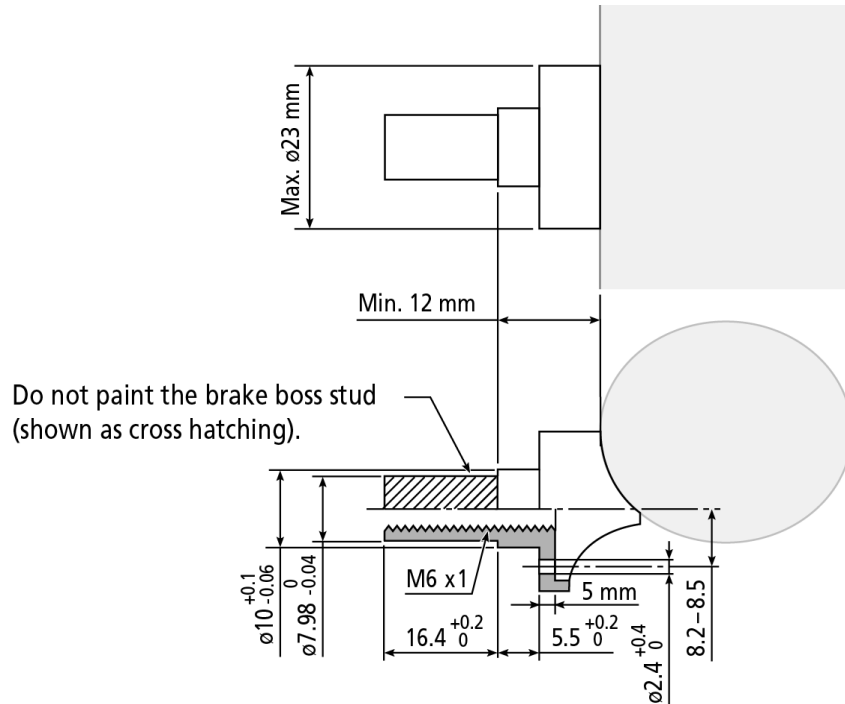


## Boss dimensions

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.

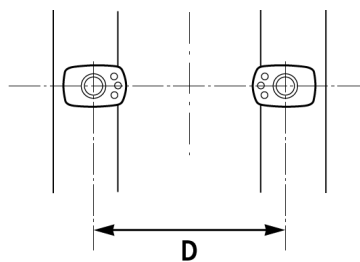


## Distance between brake bosses

C-087

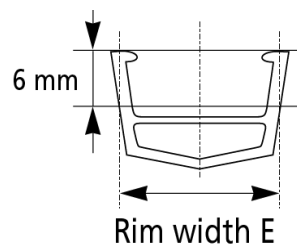
### Boss distance C-088

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



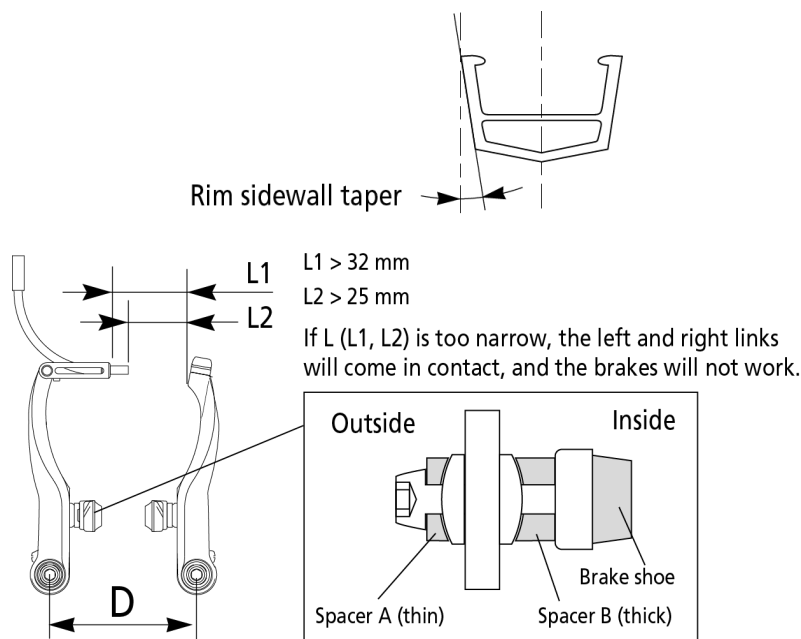
### Rim width C-089

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

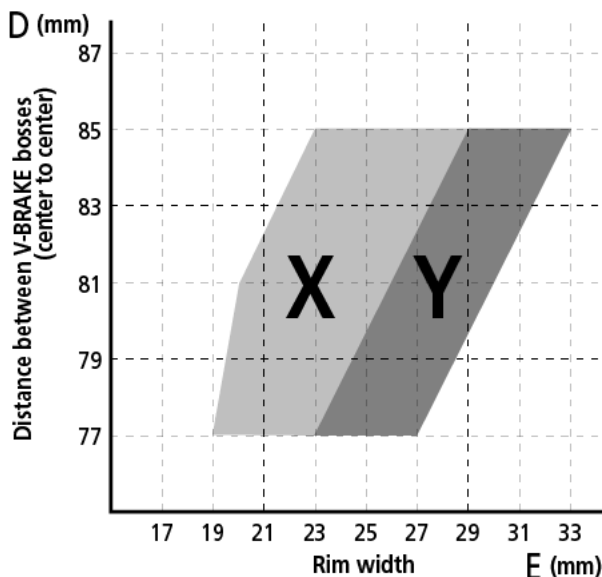


# Rim sidewall taper C-090

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.



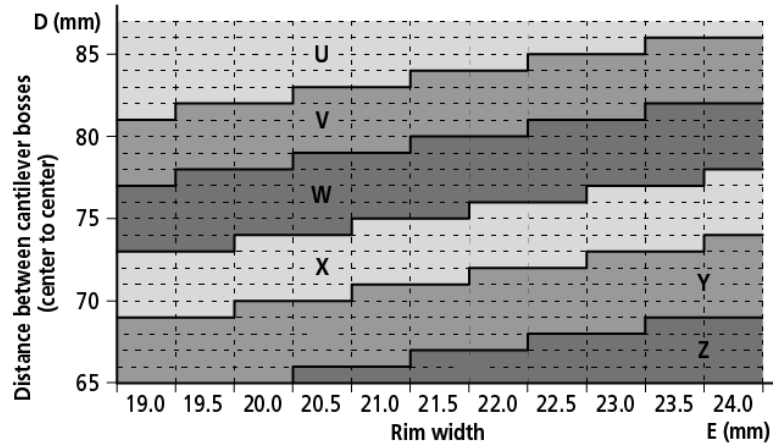
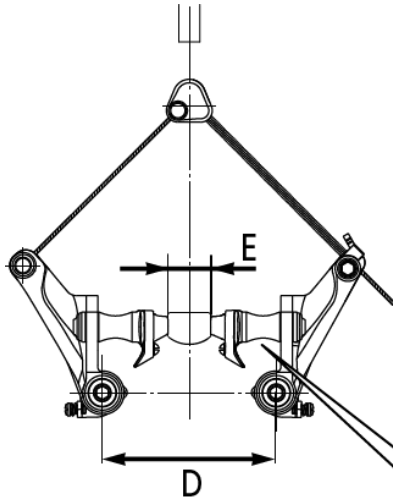
Spacer A position	Spacer B position	Graph area
Outside	Inside	X area
Inside	Outside	Y area

## 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-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.



**U: R-washer L + 2 mm spacer**

Inside      Spacer (2 mm)      Outside

Brake shoe      R-Washer (18 mm)      Bolt: L

**V: R-washer L (18 mm)**

R-washer (18 mm)      Spacer (2 mm)

Brake shoe      Bolt: L

**W: R-washer M + 2 mm spacer**

R-washer (14 mm)      Spacer (2 mm)

Brake shoe      Bolt: M

**X: R-washer M (14 mm)**

R-washer (14 mm)      Spacer (2 mm)

Brake shoe      Bolt: M

**Y: R-washer S + 2 mm spacer**

R-washer (10 mm)      Spacer (2 mm)

Brake shoe      Bolt: S

**Z: R-washer S (10 mm)**

R-washer (10 mm)      Spacer (2 mm)

Brake shoe      Bolt: S

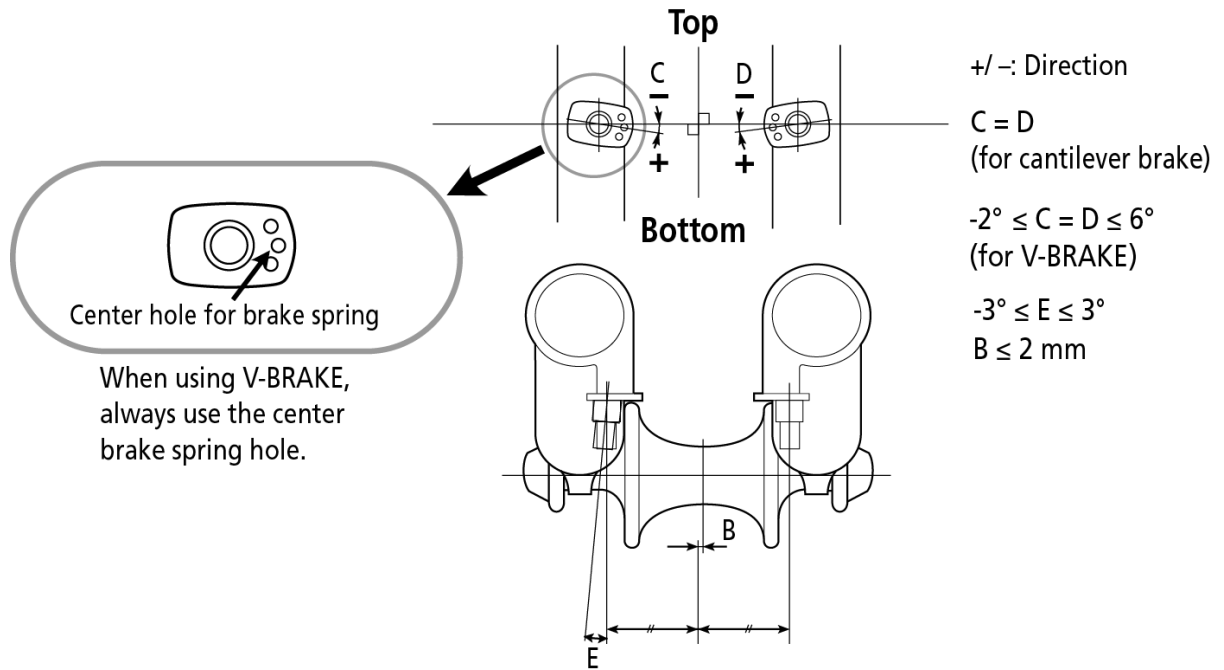
# Boss positioning

C-091

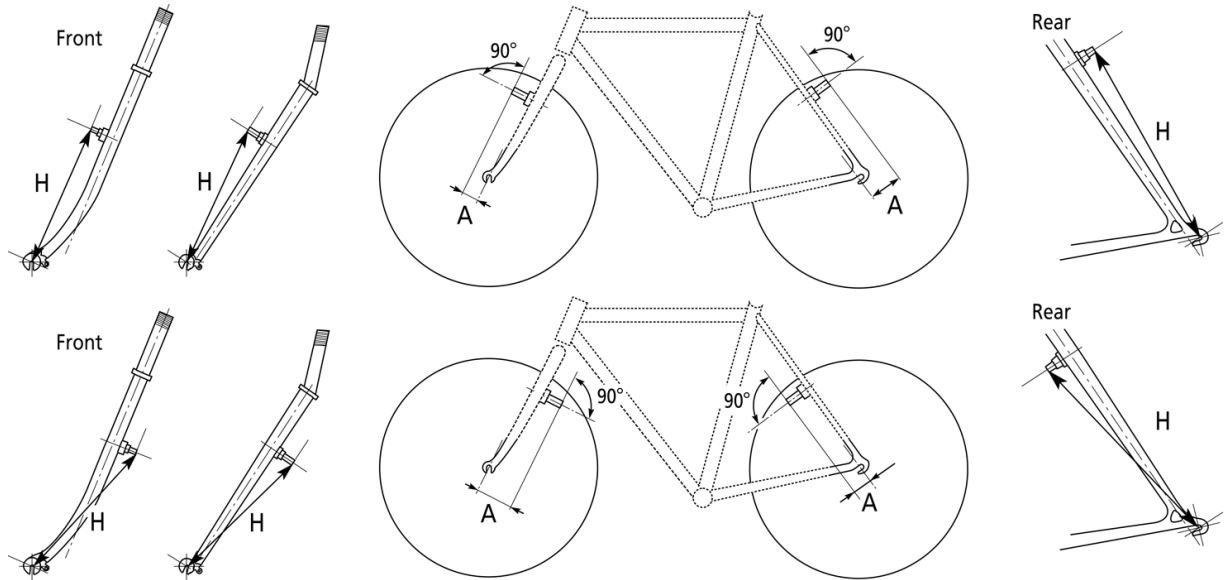
Brake bosses for use with SHIMANO brakes should be positioned within the ranges shown in the diagrams below.

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

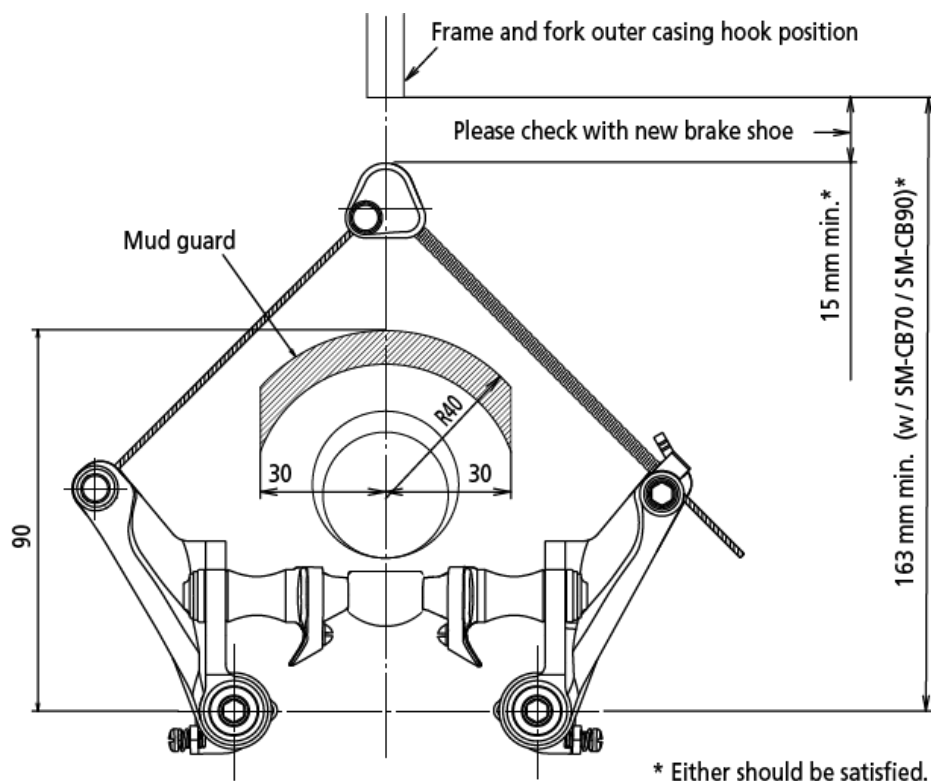
	H	A
ISO 5775 #559 (old marking 26 inch)	253.5 ± 1 mm	-8 mm ≤ A ≤ 70 mm
ISO 5775 #571 (for 650C)	258 ± 1 mm	-8 mm ≤ A ≤ 70 mm
ISO 5775 #622 (O.L.D. marking 700C, 28 inch)	283 ± 1 mm	-8 mm ≤ A ≤ 70 mm
ISO 5775 #630 (old marking 27 inch)	286 ± 1 mm	-8 mm ≤ A ≤ 70 mm

### NOTE

- Be careful about the cable routing to prevent inner lead interfering with the frame when steering the handlebar.
- 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-CX50



\* Either should be satisfied.

## Recommendation

Rim width 19 - 22 mm

Tire width 19C - 35C

Mud guard - 30C (tire)

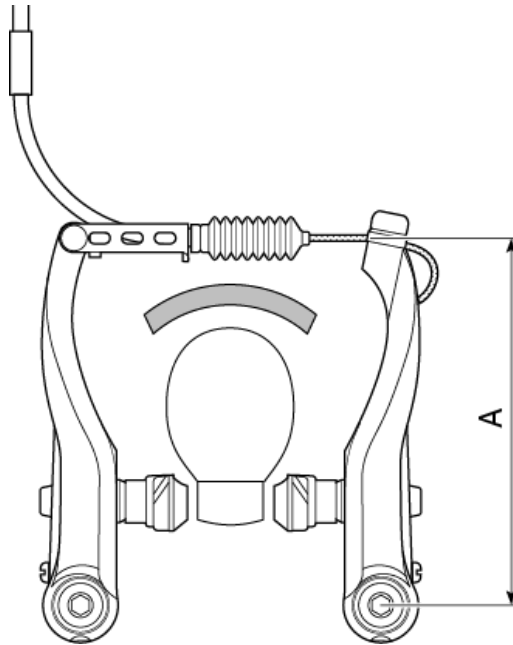
Distance between brake boss 65 - 85 mm

## Length of V-BRAKE arch

C-096

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-T610	107
BR-T4000	107
BR-MX70	103
BR-R353	90

## Caliper brake dimensions

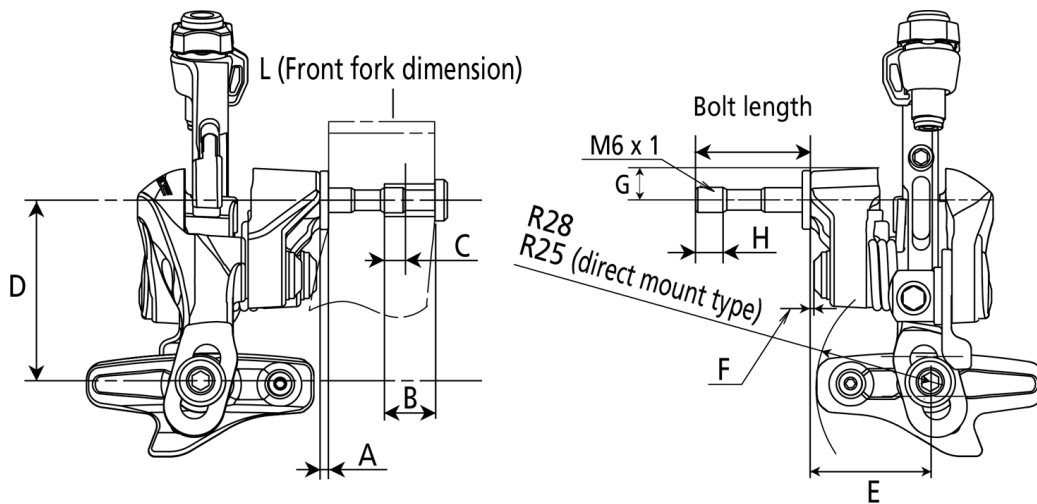
C-098

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

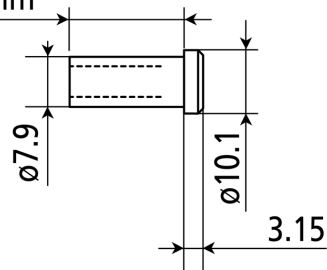
- Use lock nuts with nylon inserts (self-locking nuts) for nut type brakes.
- For sunken nut type brakes, use sunken nuts of the appropriate length (C) which can be turned 5 times or more (over 5 mm); when re-installing, apply sealant (locking adhesive) to the nut threads.

If the nuts become loose and brakes fall off, they may get caught up in the bicycle and the bicycle may fall over.

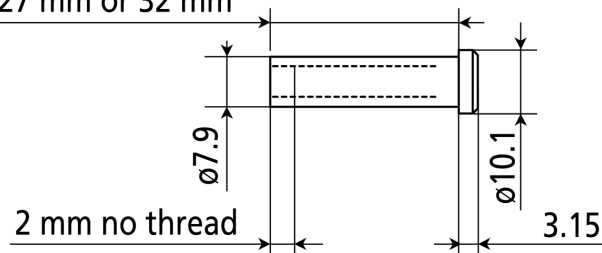
Particularly if this happens with the front wheel, the bicycle may be thrown forward and serious injury could result.



B=10.5 mm or 12.5 mm



\*B=18 mm, 27 mm or 32 mm





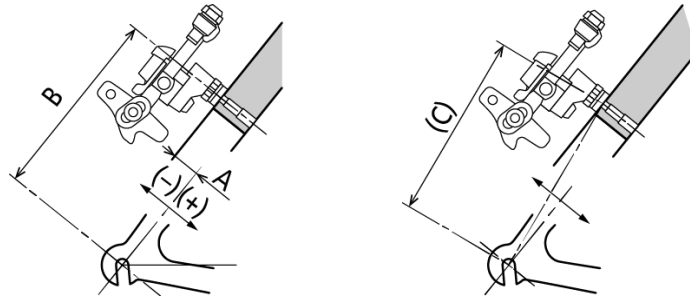
Model No.	Washer A (mm) (Front / Rear)	Dimension B (mm)		D (mm)	E (mm)	F (mm)	G (mm)	Bolt length		H (mm)			
		Front	Rear					Front	Rear	Front	Rear		
BR-R9100	1.8	10.5 12.5 18.0* 27.0* 32.0*	10.5	41 - 51	27.3 - 29.9	1.0	8.7	27.5	12.8	9.0	7.7		
BR-R9110-F	-	NOTE		24-34 NOTE	14.2 - 15.4	-	-	-	-	-	-		
BR-R9110-R				26-34 NOTE	27.1								
BR-R9110-RS				24-34 NOTE	14.2 - 15.4								
BR-R8000	2.0	10.5 12.5 18.0* 27.0* 32.0*	10.5	41 - 51	27.3 - 29.9	1.0	8.7	27.5	12.8	16.0	10.3		
BR-R7000												0.4	10.3
BR-4700												9.4	15.5
BR-R8010-F	-	NOTE		24-34 NOTE	14.1-15.4	-	-	-	-	-	-		
BR-R8010-R				26-34 NOTE	27.1								
BR-R8010-RS				24-34 NOTE	14.1-15.4								
BR-R7010-F				24-34 NOTE	14.1-15.4								
BR-R7010-R				26-34 NOTE	29								
BR-R7010-RS				24-34 NOTE	14.1-15.4								
BR-R561	2.0	10.5 12.5 18.0* 27.0* 32.0*	10.5	39 - 49	26.3-29	-	9.4	27.5	12.8	15.5	9.8		
BR-R3000	2.0	10.5 12.5 18.0 27.0 32.0		41 - 51	25.4-28.0			27.5	12.8	15.5	9.8		
BR-R2000	2.0	10.5 12.5 18.0 27.0 32.0		41 - 51	25.4-28.0			27.5	12.8	15.5	9.8		
BR-R451	2.0	10.5 12.5 18.0* 27.0*		47 - 57	26.8-29.5			11.3	27.5	12.8	15.5	9.8	

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](#).

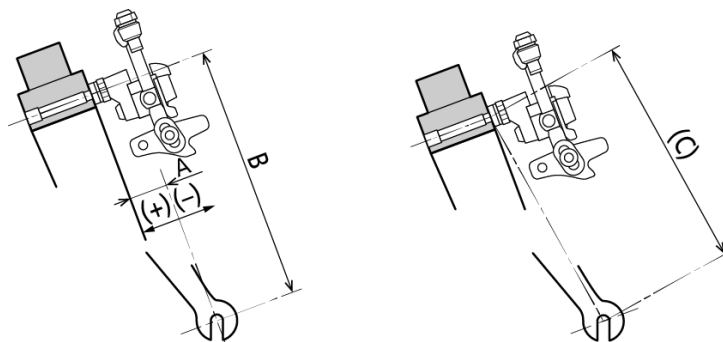
## Rear brake C-100



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-R9100: B ± 1.0  
 \*\* Not applicable to BR-R9100.

## 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-R9100: B ± 1.0  
 \*\* Not applicable to BR-R9100.

### NOTE

B,C dimension changes by size of caliper brake or wheel.

49 type caliper brake w/ 650C rim (ISO xx-571)

B and C on the table should be taken off 27.6 mm.

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

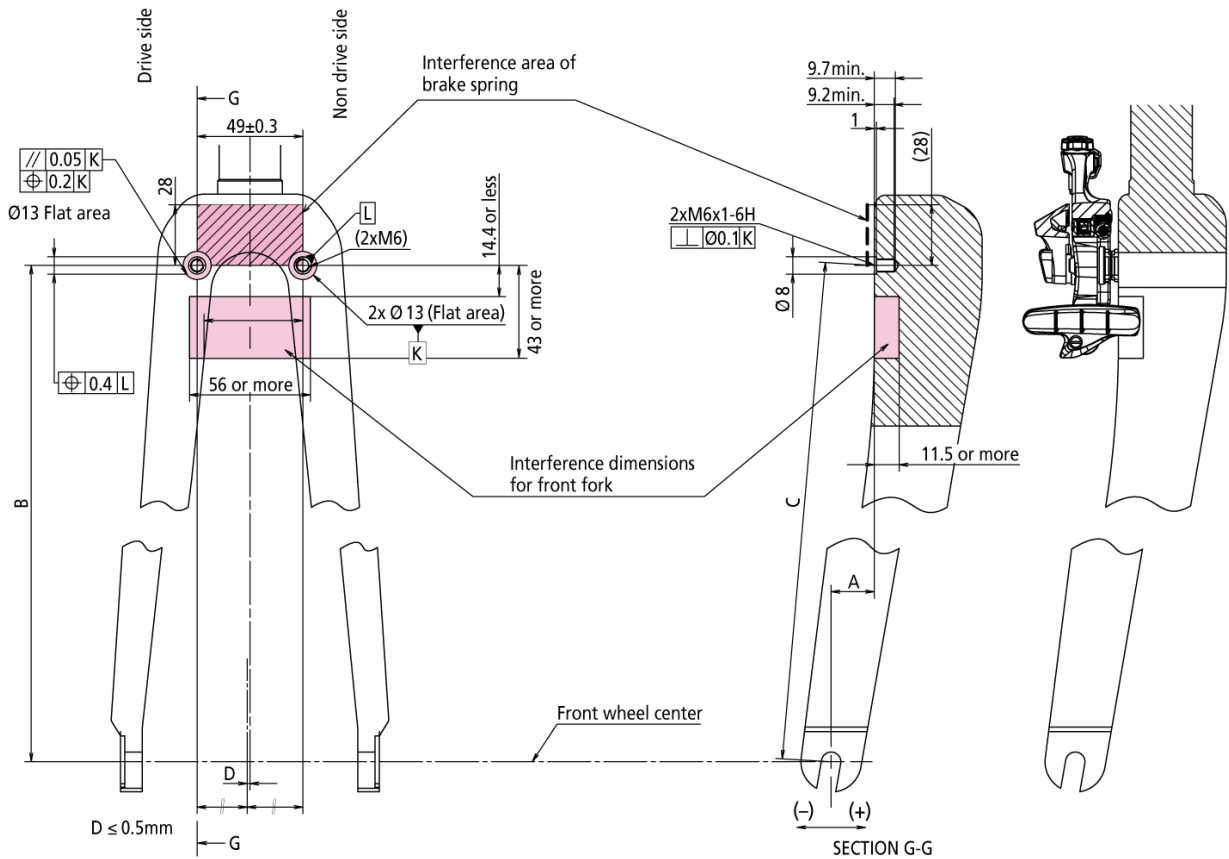
57 type caliper brake w/ 650C rim (ISO xx-571) B and C on the table should be taken off 17.6 mm.

Mounting location		Model No.
For front	Front fork	BR-R9110-F BR-R8010-F BR-R7010-F
For rear	Under bottom bracket	BR-R9110-R BR-R8010-R BR-R7010-R
	Seat stay	BR-R9110-RS* BR-R8010-RS* BR-R7010-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

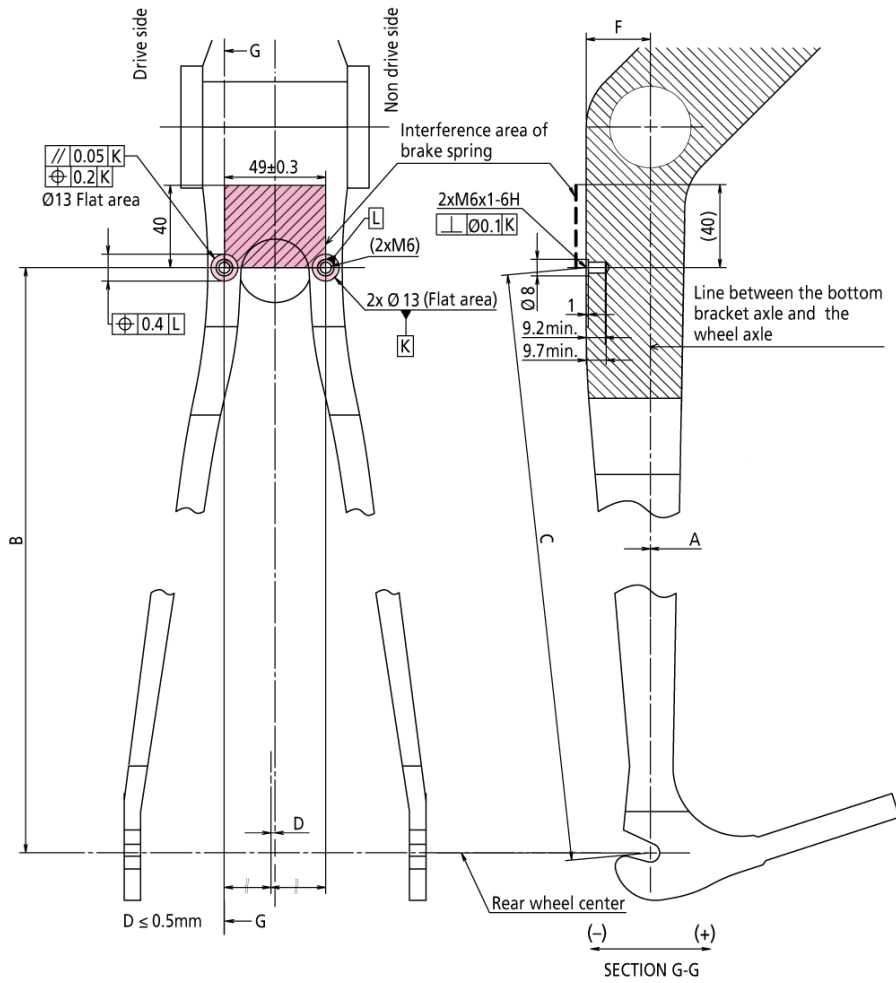
### BR-R9110-F / BR-R8010-F / BR-R7010-F



Direct mount for 700C		
Front		
A (mm)	B (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

# Under bottom bracket mount type for rear brake C-104

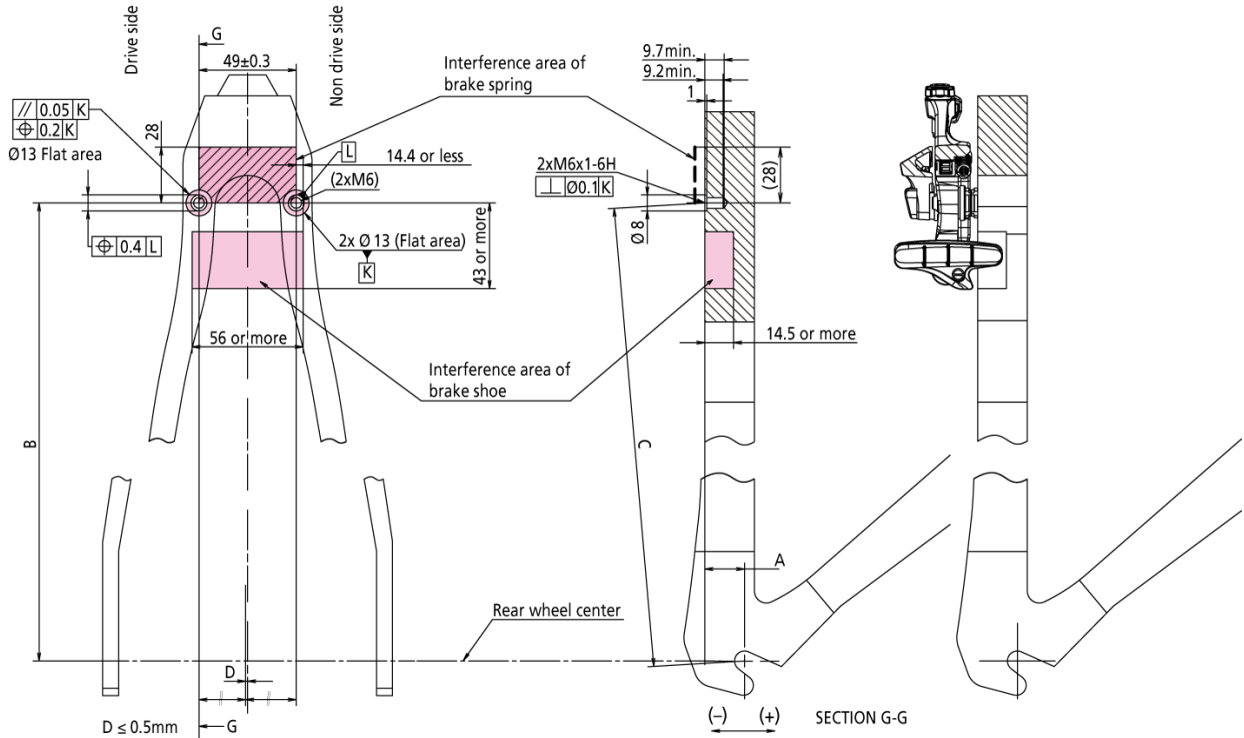
BR-R9110-R / BR-R8010-R / BR-R7010-R



Model No.	Dim. F
BR-R9110-R	25 +1/-5
BR-R8010-R	25 +1/-5
BR-R7010-R	25 +1/-5

# Rear seat stay mount type C-105

BR-R9110-RS / BR-R8010-RS / BR-R7010-RS



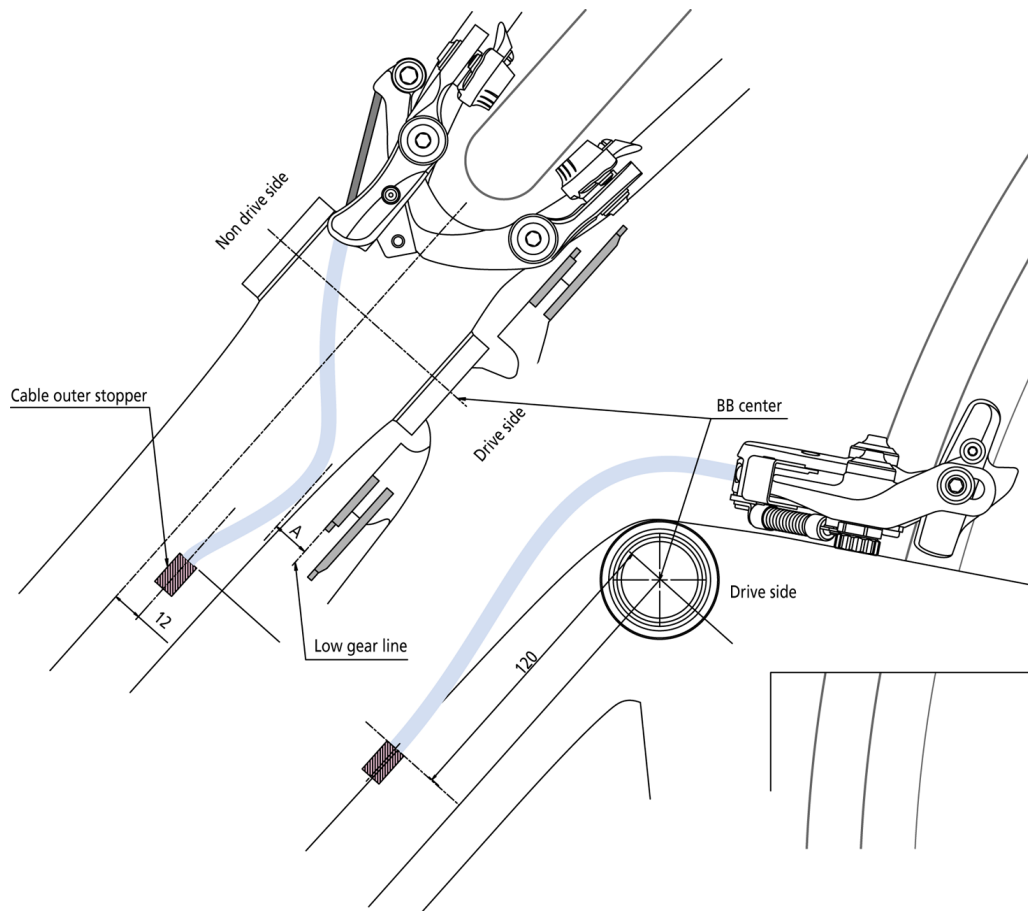
Direct mount for 700C		
Rear		
A (mm)	B (mm)	C (mm)
-30	333.3	334.7
-20	334.7	335.3
-10	335.8	335.9
0	336.5	336.5
10	336.9	337.1
20	337.0	337.6
30	336.7	338.1
40	336.2	338.5
50	335.3	339.0

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

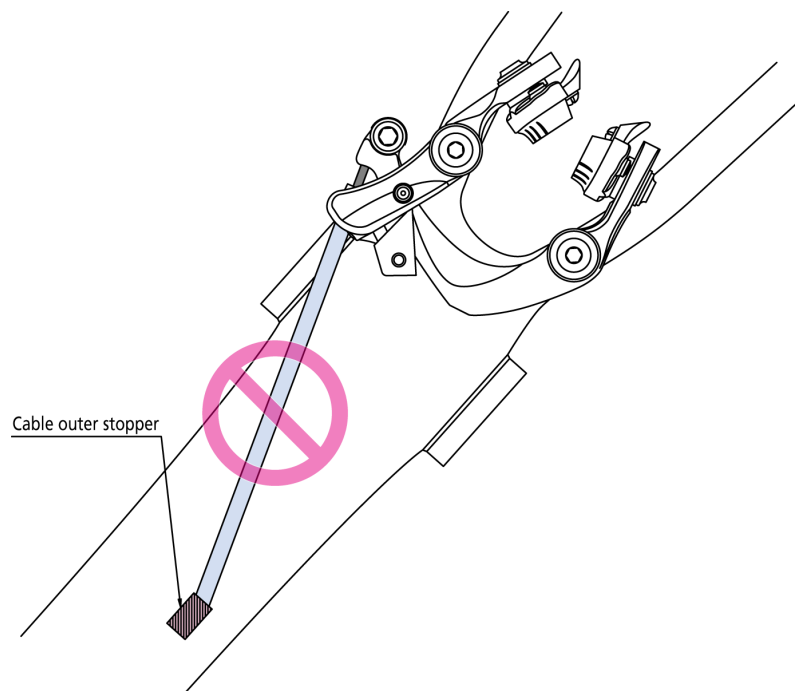
# Cable outer stopper positions for direct mount type rear caliper brake and proper outer casing length C-106

BR-R9110-R / BR-R8010-R / BR-R7010-R

When brake caliper fully open ...  $A \geq 15\text{mm}$



When brake caliper fully close



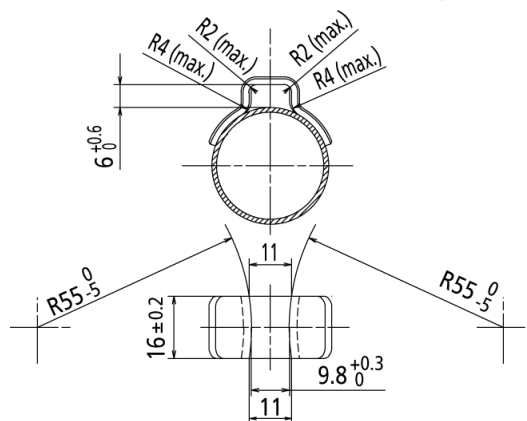
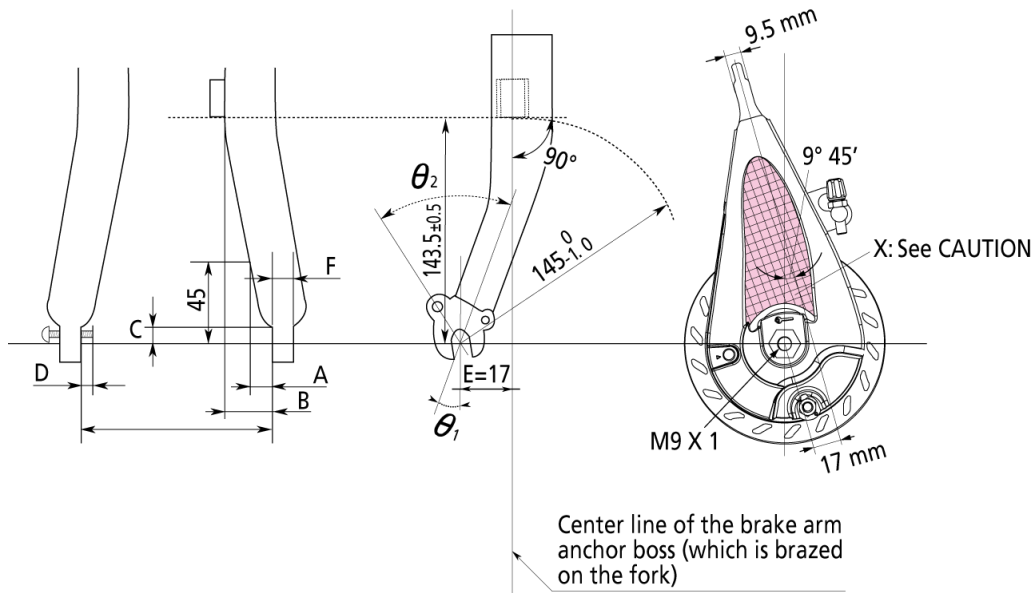
When caliper is fully closed without rear wheel, the length of brake outer casing should be long enough between cable outer stopper and caliper.

## 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.

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



Recommended dimensions for the direct-connect hook

$A \leq 6.7$

$11 \leq B \leq 14.5$

$C \geq 16$ : C is the straight section of front dropout.

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

$E = 17$ ,  $6^\circ 30' \leq \theta_1 \leq 13^\circ$ : The  $\theta_1$  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  $\theta_1$  angle is recommended to be within the above range, there may be cases where the E dimension and this  $\theta_1$  angle may have to be different from that shown above. In this case, establish the E and  $\theta_1$  specifications according to your requirements but as close as possible to the dimensions given above.

$\theta_2 < 45^\circ$ :  $\theta_2$  is the mudguard screw position.

$F \geq 5$ : "F" is the front dropout thickness. When the front dropout 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. Refer to the product 3D data so that the brake body and fork do not interfere. Please contact SHIMANO Sales Office for 3D data.
- Use a fork that has axle retention tabs on the outside of front dropouts.
- When using the hub roller brake with suspension forks, read [C-111](#).

## NOTE

BR-C6060-F has additional 18.4 mm thickness for axle direction due to modulator function (total O.L.D. depends on Front Hub design.)

## 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

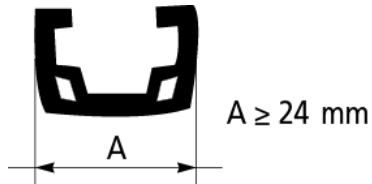
Use a wheel with 3x or 4x spoke lacing. Wheels with radial lacing cannot be used because the spokes and the wheel can be damaged when applying the brakes and brake noise can be generated.



## 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



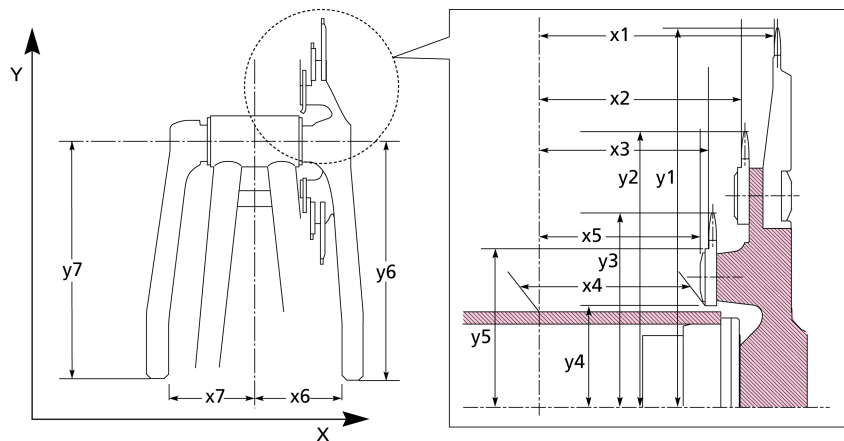
## Dimensions [MTB,Trekking]

C-116

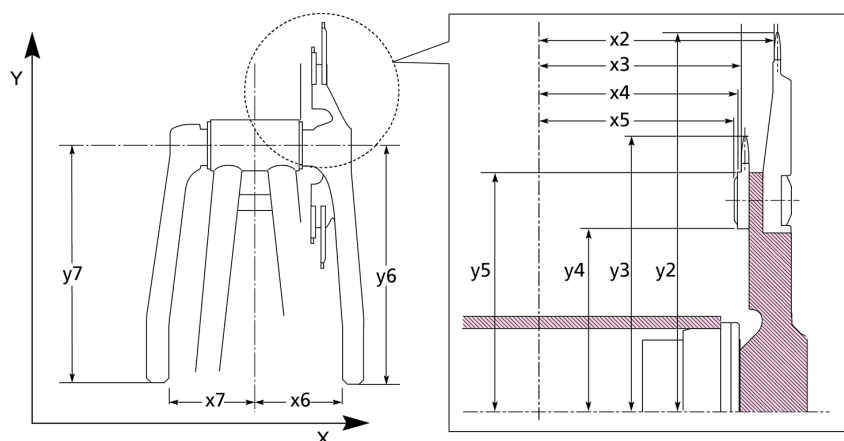
Below are the dimensions for the SHIMANO cranksets.

Design the frame while referring to these dimensions to ensure no interference.

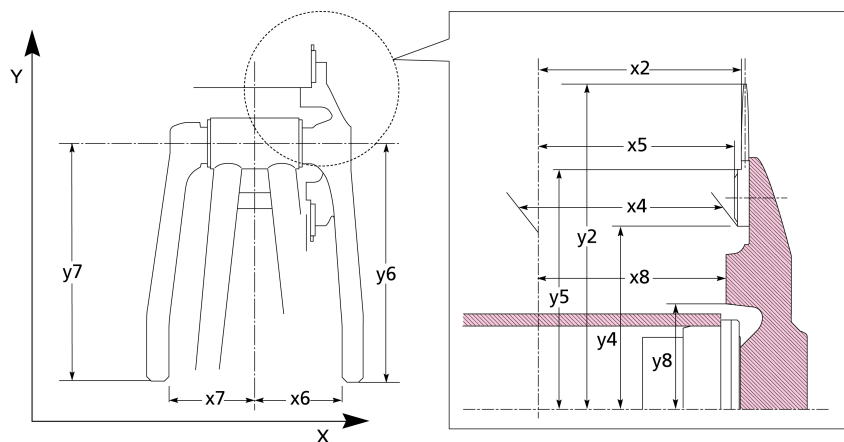
### Front triple



### Front double



### Front single



#### NOTE

When using pressfit bottom bracket, please take special care for  $X_4$ ,  $Y_4$  dimension of the crankset to avoid interference between inner ring chainring and the outer side of the bottom bracket shell of the frame.

# Y dimensions C-117



Speed	Model No.	Gear	y1 (mm)	y2 (mm)	y3 (mm)	y4 (mm)	y5 (mm)	y6 (mm)	y7 (mm)	y8 (mm)
12	FC-M9100-2	38-28T	-	79.3	59.4	35.5	50.5	193.3	193.3	-
	FC-M8100-2	36-26T	-	75.3	55.4	31.6	47.8	196.9	196.9	-
	FC-M7100-2	36-26T	-	75.3	55.4	31.6	47.8	196.9	196.9	-
	<a href="#">FC-MT610-2</a>	36-26T	-	75.3	55.4	31.6	47.8	192.8	192.8	-
	FC-M9100-1	38T	-	81.6	-	24.6	-	193.3	193.3	-
		36T	-	77.6	-	24.6	-	193.3	193.3	-
		34T	-	73.5	-	24.6	-	193.3	193.3	-
		32T	-	69.5	-	24.6	-	193.3	193.3	-
		30T	-	65.4	-	24.6	-	193.3	193.3	-
	FC-M9120-1	38T	-	81.6	-	24.6	-	193.3	193.3	-
		36T	-	77.6	-	24.6	-	193.3	193.3	-
		34T	-	73.5	-	24.6	-	193.3	193.3	-
		32T	-	69.5	-	24.6	-	193.3	193.3	-
	FC-M8100-1	30T	-	65.4	-	24.6	-	193.3	193.3	-
		36T	-	77.6	-	44.4	-	196.9	196.9	-
		34T	-	73.5	-	44.4	-	196.9	196.9	-
		32T	-	69.5	-	44.4	-	196.9	196.9	-
		30T	-	65.4	-	36.4	-	196.9	196.9	-
	FC-M7100-1	28T	-	61.4	-	36.4	-	196.9	196.9	-
		34T	-	73.5	-	44.4	-	196.9	196.9	-
		32T	-	69.5	-	44.4	-	196.9	196.9	-
		30T	-	65.4	-	36.4	-	196.9	196.9	-
	<a href="#">FC-M6100-1</a>	28T	-	61.4	-	36.4	-	196.9	196.9	-
		32T	-	69.5	-	44.3	-	192.7	192.7	-
30T		-	65.4	-	35.8	-	192.7	192.7	-	
34T		-	73.5	-	39.9	49.9	192.8	192.8	-	
<a href="#">FC-MT510-1</a>	32T	-	69.5	-	40.0	49.9	192.8	192.8	-	
	30T	-	65.4	-	40.0	49.9	192.8	192.8	-	
	34T	-	73.5	-	40.0	49.9	192.8	192.8	-	
11	FC-M7000-11-2	38-28T	-	79.3	59.4	25	38.5	191.8	191.8	-
		36-26T	-	75.3	55.4	25	38.5	191.8	191.8	-
		34-24T	-	71.2	51.3	25	38.5	191.8	191.8	-
	<a href="#">FC-M5100-2</a>	36-26T	-	75.3	55.4	25	38.5	193.1	192.7	-
	FC-MT600	36-26T	-	75.3	55.4	24.5	38.5	192.7	192.7	-
	FC-M7000-11-1	34T	-	72.5	-	-	-	191.8	191.8	24.8
		32T	-	68.5	-	-	-	191.8	191.8	24.8
		30T	-	64.4	-	-	-	191.8	191.8	24.8
	<a href="#">FC-M5100-1</a>	32T	-	68.5	-	40.2	54.5	193.1	192.7	24.8
		30T	-	64.5	-	40.2	54.5	193.1	192.7	24.8
10	FC-MT500-3	40-30-22T	83.6	63.6	48.3	24.5	38.2	-	-	-
	FC-T8000	48-36-26T	99.8	75.2	56.2	24.0	47.5	191.9	191.9	-
	FC-T6000	48-36-26T	99.8	75.2	56.2	24.0	47.5	191.6	191.6	-
	FC-T6010	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-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-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-M6000-2	38-28T	-	79.3	59.4	25.0	38.2	192.6	192.6	-
		36-26T	-	75.3	55.4	25.0	38.2			
		34-24T	-	71.2	51.3	25.0	38.2			
	<a href="#">FC-M4100-2</a>	36-26T	-	75.3	55.4	25.0	38.5	193.1	192.7	-
	FC-M617	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-MT500-2	36-26T	-	75.3	55.4	25.0	38.2	192.5	192.5	-
	<a href="#">FC-M5100-1</a>	32T	-	68.5	-	40.2	-			
		30T	-	64.5	-	40.2	-			
	FC-M820	38T	-	80.4	-	-	-			
		36T	-	76.4	-	-	-			
34T		-	72.4	-	-	-				
FC-M825	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-M2000	40-30-22T	83.8	63.3	48.5	20.3	-	192.7	192.7
	FC-M371	48-36-26T	99.9	75.2	56.4	21.3	-	192	192
		44-32-22T	91.8	67.1	48.3	19.8	-		
	FC-MT200	40-30-22T	83.6	63.1	48.3	24.9	-	192.7	192.7
		44-32-22T	91.7	67.0	48.1	24.9	-	192.5	192.5
	FC-MT210-3	40-30-22T	83.6	63.6	48.3	24.9	-	192.5	192.5
		44-32-22T	91.8	67.1	48.3	19.8	-	190.5	190.5
	FC-MT101	40-30-22T	83.7	63.7	48.3	20.3	-	190.5	190.5
		48-36-26T	99.8	75.1	56.3	19.9	38.2	193	193
	FC-T4010	44-32-22T	91.8	67.0	48.2	19.9	38.2		
		FC-T4060	48-36-26T	99.8	75.1	56.2	24.0	38.2	191.3
	44-32-22T		91.7	67.0	48.1	24.5	38.2		
	FC-T3010	48-36-26T	99.8	75.1	56.3	19.9	38.2	193.1	193.1
44-32-22T		91.8	67.0	48.2	19.9	38.2			
FC-MT210-2	46-30T	-	94.9	64	39.5	-	192.6	192.6	
	36-22T	-	75.3	48.3	25.2	-	192.5	192.5	
FC-MT101-2	36-22T	-	75.3	48.3	21.0	-	190.7	190.7	
8, 7	FC-TX801	48-38-28T	100.3	79.4	59.5	25.2	-	192.3	192.3
		42-32-22T	87.8	68.1	47.3	19.8	-		
	FC-M315-2	36-22T	-	75.3	48.3	21.0	-	190.7	190.7
FC-TY501-2	46-30T	-	95	64	25.4	-	192.9	192.9	
	48-38-28T	100.5	79.4	59.4	25.0	-	192.6	192.6	
8, 7, 6	FC-TY501	42-34-24T	88.4	72.2	51.9	21.5	-	192.0	192.0
		48-38-28T	100.5	79.4	59.4	25.0	-	192.1	192.1
	FC-TY301	42-34-24T	88.4	72.2	51.9	21.5	-	191.4	191.4
		46T	-	96.4	-	** (37.5)	-	197.5	197.5
44T	-	92.4	-	** (37.5)	-				
43T	-	90.4	-	** (37.5)	-				
42T	-	88.3	-	** (37.5)	-				
41T	-	86.3	-	** (37.5)	-				
38T	-	80.3	-	** (37.5)	-				
1	FC-MX71	34T	-	72.2	-	** (37.5)	-		

## Chain line 3 mm 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)
12	FC-M9120-B2	38-28T	-	79.3	59.4	35.5	50.5	193.3	193.3	-
	FC-M8120-B2	36-26T	-	75.3	55.4	31.6	46.5	196.9	196.9	-
	FC-M7120-B2	36-26T	-	75.3	55.4	31.6	46.5	196.9	196.9	-
	<a href="#">FC-MT610-B2</a>	36-26T	-	75.3	55.4	31.6	47.8	192.8	192.8	-
	FC-M9100-1*	38T	-	81.6	-	24.6	-	193.3	193.3	-
		36T	-	77.6	-	24.6	-	193.3	193.3	-
		34T	-	73.5	-	24.6	-	193.3	193.3	-
		32T	-	69.5	-	24.6	-	193.3	193.3	-
		30T	-	65.4	-	24.6	-	193.3	193.3	-
	FC-M9120-1*	38T	-	81.6	-	24.6	-	193.3	193.3	-
		36T	-	77.6	-	24.6	-	193.3	193.3	-
		34T	-	73.5	-	24.6	-	193.3	193.3	-
		32T	-	69.5	-	24.6	-	193.3	193.3	-
		30T	-	65.4	-	24.6	-	193.3	193.3	-
	FC-M8100-1*	36T	-	77.6	-	44.4	-	196.9	196.9	-
		34T	-	73.5	-	44.4	-	196.9	196.9	-
		32T	-	69.5	-	44.4	-	196.9	196.9	-
		30T	-	65.4	-	36.4	-	196.9	196.9	-
		28T	-	61.4	-	36.4	-	196.9	196.9	-
	FC-M7100-1*	34T	-	73.5	-	44.4	-	196.9	196.9	-
32T		-	69.5	-	44.4	-	196.9	196.9	-	
30T		-	65.4	-	36.4	-	196.9	196.9	-	
28T		-	61.4	-	36.4	-	196.9	196.9	-	
FC-M9020-B2		36-26T	-	75.3	55.4	24.5	44.9	197.8	197.8	-
	34-24T	-	71.2	51.3	24.5	44.9	-			
11	FC-M8000-B2	36-26T	-	75.3	55.4	24.5	38.5	196.9	196.9	-
		34-24T	-	71.2	51.3	25.0	38.5	191.8	191.8	-
	<a href="#">FC-M5100-B2</a>	36-26T	-	75.3	55.4	25.0	38.5	193.1	192.7	-
	FC-MT700-B2	36-26T	-	75.3	55.4	25.0	38.5	191.8	191.8	-
		34-24T	-	71.2	51.3	25.0	38.5	191.8	191.8	-
	FC-M9020-B1	32T	-	68.5	-	-	-	197.8	197.8	24.7
		30T	-	64.4	-	-	-			
	FC-M8000-B1	32T	-	68.5	-	-	-	196.9	196.9	24.8
		30T	-	64.4	-	-	-	191.8	191.8	24.8
	10	<a href="#">FC-M4100-B2</a>	36-26T	-	75.3	55.4	25.0	38.5	193.1	192.7
FC-M627-B		36-22T	-	75.3	48.3	25.0	38.2	192.6	192.6	-
9	FC-MT210-B2	36-22T	-	75.3	48.3	25.0	-	192.5	192.5	-
	FC-MT101-B2	36-22T	-	75.3	48.3	21.0	-	190.7	190.7	-
8	FC-M315-B2	36-22T	-	75.3	48.3	21.0	-	190.7	190.7	-

\* Common use with standard chain line spec.

### NOTE

It also requires new dimension of frame which cassette position is 3 mm outboard.

## Chain line 6 mm outboard spec. Y dimensions C-613

Speed	Model No.	Gear	y1 (mm)	y2 (mm)	y3 (mm)	y4 (mm)	y5 (mm)	y6 (mm)	y7 (mm)	y8 (mm)
12	FC-M8120-1	36T	-	77.6	-	44.4	-	196.9	196.9	-
		34T	-	73.5	-	44.4	-	196.9	196.9	-
		32T	-	69.5	-	44.4	-	196.9	196.9	-
		30T	-	65.4	-	36.4	-	196.9	196.9	-
		28T	-	61.4	-	36.4	-	196.9	196.9	-
	FC-M7120-1	34T	-	73.5	-	44.4	-	196.9	196.9	-
		32T	-	69.5	-	44.4	-	196.9	196.9	-
		30T	-	65.4	-	36.4	-	196.9	196.9	-
	FC-M6120-1	32T	-	69.5	-	44.3	-	192.7	192.7	-
		30T	-	65.4	-	35.8	-	192.7	192.7	-

## Chain line 7.5 mm outboard spec. Y dimensions C-601



Speed	Model No.	Gear	y1 (mm)	y2 (mm)	y3 (mm)	y4 (mm)	y5 (mm)	y6 (mm)	y7 (mm)	y8 (mm)
12	FC-M9130-1	34T	-	73.5	-	24.6	-	193.3	193.3	-
		32T	-	69.5	-	24.6	-	193.3	193.3	-
		30T	-	65.4	-	24.6	-	193.3	193.3	-
	FC-M8130-1	34T	-	73.5	-	44.4	-	196.9	196.9	-
		32T	-	69.5	-	44.4	-	196.9	196.9	-
		30T	-	65.4	-	36.4	-	196.9	196.9	-
		28T	-	61.4	-	36.4	-	196.9	196.9	-
	FC-M7130-1	34T	-	73.5	-	44.4	-	196.9	196.9	-
		32T	-	69.5	-	44.4	-	196.9	196.9	-
		30T	-	65.4	-	36.4	-	196.9	196.9	-
	FC-M6130-1	32T	-	69.5	-	44.3	-	192.7	192.7	-
		30T	-	65.4	-	35.8	-	192.7	192.7	-

# X dimensions C-118



Speed	Model No.	Gear	Chain line (mm)	x1 (mm)	x2 (mm)	x3 (mm)	x4 (mm)	x5 (mm)	x6 (mm)	x7 (mm)	x8 (mm)
12	FC-M9100-2	38-28T	48.8	-	50.3	42.9	42.8	41.0	65	63.8	-
	FC-M8100-2	36-26T	48.8	-	50.3	42.9	42.2	41.3	70.2	69	-
	FC-M7100-2	36-26T	48.8	-	50.3	42.9	42.2	41.3	70.2	69	-
	<a href="#">FC-MT610-2</a>	36-26T	48.8	-	50.3	42.9	42.9	41.2	73.4	68.4	-
	FC-M9100-1	38T	52	-	48.9	-	45.5	-	65	63.8	-
		36T	52	-	48.9	-	45.5	-	65	63.8	-
		34T	52	-	48.9	-	45.5	-	65	63.8	-
		32T	52	-	48.9	-	45.5	-	65	63.8	-
	FC-M9120-1	30T	52	-	48.9	-	45.5	-	65	63.8	-
		38T	52	-	48.9	-	45.5	-	68	66.8	-
		36T	52	-	48.9	-	45.5	-	68	66.8	-
		34T	52	-	48.9	-	45.5	-	68	66.8	-
	FC-M8100-1	32T	52	-	48.9	-	45.5	-	68	66.8	-
		30T	52	-	48.9	-	45.5	-	68	66.8	-
		36T	52	-	48.9	-	45.4	-	70.2	69	-
		34T	52	-	48.9	-	45.4	-	70.2	69	-
	FC-M7100-1	32T	52	-	48.9	-	45.4	-	70.2	69	-
		30T	52	-	48.9	-	45.4	-	70.2	69	-
		28T	52	-	48.9	-	45.4	-	70.2	69	-
		34T	52	-	48.9	-	45.4	-	70.2	69	-
	<a href="#">FC-M6100-1</a>	32T	52	-	48.9	-	48.3	-	70.3	70.3	-
30T		52	-	48.9	-	48.3	-	70.3	70.4	-	
<a href="#">FC-MT510-1</a>	34T	52	-	49.3	-	47.5	47.9	72.7	72.8	-	
	32T	52	-	49.1	-	49.0	48.2	72.7	72.8	-	
	30T	52	-	49.1	-	49.0	48.2	72.7	72.8	-	
11	FC-M7000-11-2	38-28T	48.8	-	50.2	42.8	42.8	40.8	72.2	72.2	-
		36-26T	48.8	-	50.2	42.8	42.8	40.8	72.2	72.2	-
		34-24T	48.8	-	50.2	42.8	42.8	40.8	72.2	72.2	-
	<a href="#">FC-M5100-2</a>	36-26T	48.8	-	50.2	42.8	42.8	40.8	71.5	72	-
	FC-MT600	36-26T	48.8	-	50.2	42.8	42.8	40.8	72.7	72.8	-
	FC-M7000-11-1	34T	50.4	-	47.8	-	-	-	72.2	72.2	45.3
		32T	50.4	-	47.8	-	-	-	72.2	72.2	45.3
		30T	50.4	-	47.8	-	-	-	72.2	72.2	45.3
	<a href="#">FC-M5100-1</a>	32T	52	-	48.8	-	48.8	48.2	71.5	72.0	48.2
		30T	52	-	48.8	-	48.8	48.2	71.5	72.0	48.2
10	FC-MT500-3	40-30-22T	50.0	55.7	48.3	40.7	40.7	38.3	72.2	72.2	-
	FC-T8000	48-36-26T	50.0	55.7	48.2	40.4	39.4	38.0	72.2	72.2	-
	FC-T6000	48-36-26T	50.0	55.7	48.2	40.3	40.3	38.3	78.4	71.4	-
	FC-T6010	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-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-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-M6000-2	38-28T	48.8	-	53.2	45.8	45.8	44.0	74.5	74.5	-
		36-26T	48.8	-	53.2	45.8	45.8	44.0	74.5	74.5	-
		34-24T	48.8	-	53.2	45.8	45.8	44.0	74.5	74.5	-
	<a href="#">FC-M4100-2</a>	36-26T	48.8	-	50.2	42.8	42.8	40.8	71.5	72.0	-
	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-MT500-2	36-26T	48.8	-	50.2	42.8	42.8	41.0	72.7	72.8	-
	<a href="#">FC-M5100-1</a>	32T	52	-	48.8	-	48.8	48.2	71.5	72.0	48.2
		30T	52	-	48.8	-	48.8	48.2	71.5	72.0	48.2
FC-M820	38T	50.4	-	47.8	-	-	-	71.0	71.0	-	
	36T		-	47.8	-	-	-	71.0	71.0	-	
	34T		-	47.8	-	-	-	71.0	71.0	-	
FC-M825	38T	57.9	-	55.3	-	-	-	78.5	78.5	-	
	36T		-	55.3	-	-	-	78.5	78.5	-	
	34T		-	55.3	-	-	-	78.5	78.5	-	

Speed	Model No.	Gear	Chain line (mm)	x1 (mm)	x2 (mm)	x3 (mm)	x4 (mm)	x5 (mm)	x6 (mm)	x7 (mm)
9	FC-M2000	40-30-22T	50.0	54.9	47.4	39.4	38.2	-	74.0	72.2
	FC-M371	48-36-26T	50.0	55.5	48.0	40.1	38.0	-	76.5	72.0
		44-32-22T								
	FC-MT200	40-30-22T	50.0	55.8	48.3	40.4	45.2	-	72.5	72.8
	FC-MT210-3	44-32-22T	50.0	55.8	48.3	40.4	45.2	-	72.1	72.0
		40-30-22T	50.0	55.8	48.3	40.4	45.2	-	72.1	72.0
	FC-MT101	44-32-22T	50.0	55.2	47.7	39.7	38.3	-	73.1	70.4
		40-30-22T	50.0	55.2	47.7	39.7	38.5	-	73.1	70.4
	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-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-T3010	48-36-26T	50.0	55.2	47.6	39.8	37.8	38.0	79.7	75.1
44-32-22T										
FC-MT210-2	46-30T	48.8	-	50.3	42.7	48.1	-	71.8	71.7	
	36-22T		-	50.4	42.5	47.9	-	72.1	72.0	
FC-MT101-2	36-22T	48.8	-	50.4	42.5	39.5	-	73.1	70.4	
8, 7	FC-TX801	48-38-28T	50.0	55.0	47.4	39.5	37.8	-	80.4	74.3
		42-32-22T								
	FC-M315-2	36-22T	48.8	-	50.4	41.9	39.5	-	73.1	70.4
FC-TY501-2	46-30T	48.8	-	49.9	41.6	36	-	79.1	75.7	
8, 7, 6	FC-TY501	48-38-28T	47.5+t	52.1+t	44.6+t	36.2+t	34.2+t	-	78.7+t	77.2+t
			47.5	52.1	44.6	36.2	34.2	-	78.7	77.2
		42-34-24T	47.5	51.8	44.7	36.5	35.7	-	77.7	76.2
	FC-TY301	48-38-28T	47.5+t	52.1+t	44.6+t	36.2+t	34.2+t	-	77.2+t	77.2+t
			47.5	52.1	44.6	36.2	34.2	-	77.2	77.2
		42-34-24T	47.5	51.8	44.7	36.5	35.7	-	75.8	74.3
FC-TY301	47.5+t	51.8+t	44.7+t	36.5+t	35.7+t	-	75.8+t	74.3-t		
1	FC-MX71	46, 44, 43, 42, 41, 38, 34T	44.0	-	41.4	-	40.1	-	70.1	70.1

\* t = chain case stay thickness should be  $1.8 \pm 0.3$  mm



## Chain line 3 mm 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)
12	FC-M9120-B2	38-28T	51.8	-	53.3	45.9	45.8	44.0	68	66.8	-
	FC-M8120-B2	36-26T	51.8	-	53.3	45.9	45.9	44.2	73.2	72	-
	FC-M7120-B2	36-26T	51.8	-	53.3	45.9	45.9	44.2	73.2	72	-
	<a href="#">FC-MT610-B2</a>	36-26T	51.8	-	53.3	45.9	45.9	44.2	76.3	71.4	-
	FC-M9100-1*	38T	52	-	48.9	-	45.5	-	65	63.8	-
		36T	52	-	48.9	-	45.5	-	65	63.8	-
		34T	52	-	48.9	-	45.5	-	65	63.8	-
		32T	52	-	48.9	-	45.5	-	65	63.8	-
		30T	52	-	48.9	-	45.5	-	65	63.8	-
	FC-M9120-1*	38T	52	-	48.9	-	45.5	-	68	66.8	-
		36T	52	-	48.9	-	45.5	-	68	66.8	-
		34T	52	-	48.9	-	45.5	-	68	66.8	-
		32T	52	-	48.9	-	45.5	-	68	66.8	-
		30T	52	-	48.9	-	45.5	-	68	66.8	-
	FC-M8100-1*	36T	52	-	48.9	-	45.4	-	70.2	69	-
		34T	52	-	48.9	-	45.4	-	70.2	69	-
		32T	52	-	48.9	-	45.4	-	70.2	69	-
		30T	52	-	48.9	-	45.4	-	70.2	69	-
		28T	52	-	48.9	-	45.4	-	70.2	69	-
	FC-M7100-1*	34T	52	-	48.9	-	45.4	-	70.2	69	-
32T		52	-	48.9	-	45.4	-	70.2	69	-	
30T		52	-	48.9	-	45.4	-	70.2	69	-	
28T		52	-	48.9	-	45.4	-	70.2	69	-	
11	FC-M9020-B2	36-26T	51.8	-	53.2	45.8	45.1	43.9	71.4	71.5	-
		34-24T	51.8	-	53.2	45.8	45.1	43.9	71.4	71.5	-
	FC-M8000-B2	36-26T	51.8	-	53.2	45.8	45.1	43.9	72.2	72.2	-
		34-24T	51.8	-	53.2	45.8	45.1	43.9	72.2	72.2	-
	<a href="#">FC-M5100-B2</a>	36-26T	51.8	-	53.2	45.8	45.8	43.8	71.5	72.0	-
	FC-MT700-B2	36-26T	51.8	-	53.2	45.8	45.1	43.9	72.0	72.0	-
		34-24T	51.8	-	53.2	45.8	45.1	43.9	72.0	72.0	-
	FC-M9020-B1	32T	53.4	-	50.8	-	-	-	71.5	71.5	49.7
		30T	53.4	-	50.8	-	-	-	72.2	72.2	48.3
	FC-M8000-B1	32T	53.4	-	50.8	-	-	-	72.2	72.2	48.3
30T		53.4	-	50.8	-	-	-	72.2	72.2	48.3	
10	<a href="#">FC-M4100-B2</a>	36-26T	51.8	-	53.2	45.8	45.8	43.8	71.5	72.0	-
	FC-M627-B	36-22T	51.8	-	53.2	45.8	45.8	44.1	73.0	72.4	-
9	FC-MT210-B2	36-22T	51.8	-	53.4	45.6	50.9	-	72.1	72.0	-
	FC-MT101-B2	36-22T	52	-	53.4	45.5	42.5	-	73.1	70.4	-
8	FC-M315-B2	36-22T	51.7	-	53.4	44.9	42.5	-	73.1	70.4	-

\* Common use with standard chain line spec.

### NOTE

It also requires new dimension of frame which cassette position is 3 mm outboard.

## Chain line 6 mm outboard spec. X dimensions C-614

Speed	Model No.	Gear	Chain line (mm)	x1 (mm)	x2 (mm)	x3 (mm)	x4 (mm)	x5 (mm)	x6 (mm)	x7 (mm)	x8 (mm)
12	FC-M8120-1	36T	55	-	51.9	-	48.4	-	73.2	72	-
		34T	55	-	51.9	-	48.4	-	73.2	72	-
		32T	55	-	51.9	-	48.4	-	73.2	72	-
		30T	55	-	51.9	-	48.4	-	73.2	72	-
		28T	55	-	51.9	-	48.4	-	73.2	72	-
	FC-M7120-1	34T	55	-	51.9	-	48.4	-	73.2	72	-
		32T	55	-	51.9	-	48.4	-	73.2	72	-
		30T	55	-	51.9	-	48.4	-	73.2	72	-
	FC-M6120-1	32T	55	-	51.9	-	51.3	-	73.3	73.3	-
		30T	55	-	51.9	-	51.3	-	73.3	73.3	-

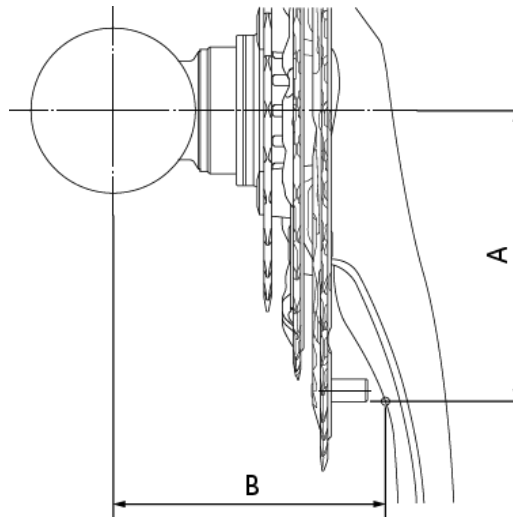
## Chain line 7.5 mm outboard spec. X dimensions C-602

12

Speed	Model No.	Gear	Chain line (mm)	x1 (mm)	x2 (mm)	x3 (mm)	x4 (mm)	x5 (mm)	x6 (mm)	x7 (mm)	x8 (mm)
12	FC-M9130-1	34T	56.5	-	53.4	-	50	-	69.5	68.3	-
		32T	56.5	-	53.4	-	50	-	69.5	68.3	-
		30T	56.5	-	53.4	-	50	-	69.5	68.3	-
	FC-M8130-1	34T	56.5	-	53.4	-	45.4	-	74.7	73.5	-
		32T	56.5	-	53.4	-	45.4	-	74.7	73.5	-
		30T	56.5	-	53.4	-	45.4	-	74.7	73.5	-
		28T	56.5	-	53.4	-	45.4	-	74.7	73.5	-
	FC-M7130-1	34T	56.5	-	53.4	-	45.4	-	74.7	73.5	-
		32T	56.5	-	53.4	-	45.4	-	74.7	73.5	-
		30T	56.5	-	53.4	-	45.4	-	74.7	73.5	-
	FC-M6130-1	32T	56.5	-	53.4	-	52.8	-	74.8	74.8	-
		30T	56.5	-	53.4	-	52.8	-	74.8	74.8	-

# Position of stopper pin [MTB, Trekking]

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



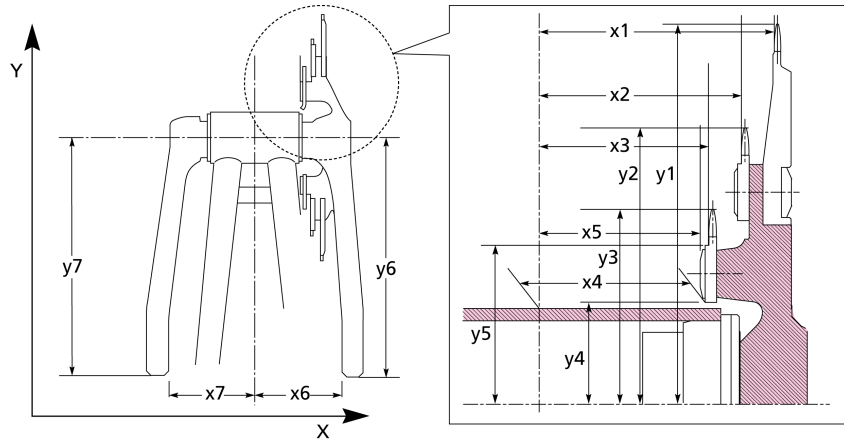
A: BB center - edge of the stopper pin

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

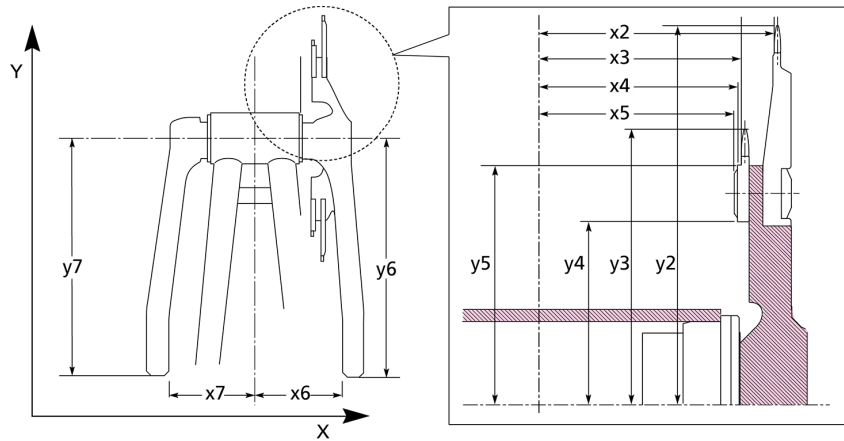
Speed	Model No.	Top gear	Pin position distance	
			Normal (A) (mm)	Back side of crank arm Normal (B) (mm)
10	FC-T8000	48T	N/A	N/A
		44T	81.0	74.0
	FC-T6010	48T	79.0	73.7
		44T	81.0	77.1
	FC-T551	48T	79.0	76.8
		44T	81.0	77.0
9	FC-T521	48T	79.0	76.7
		44T	65.0	74.5
	FC-T4060	48T	77.0	76.2
		44T	65.0	76.5
	FC-T4010	48T	77.0	79.0
		44T	65.0	76.4
FC-T3010	48T	77.0	78.7	
	8, 7, 6	FC-TY501	42T	79.0
48T			78.5	82.3
FC-TY301		42T	79.0	79.2
	48T	78.5	79.1	

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

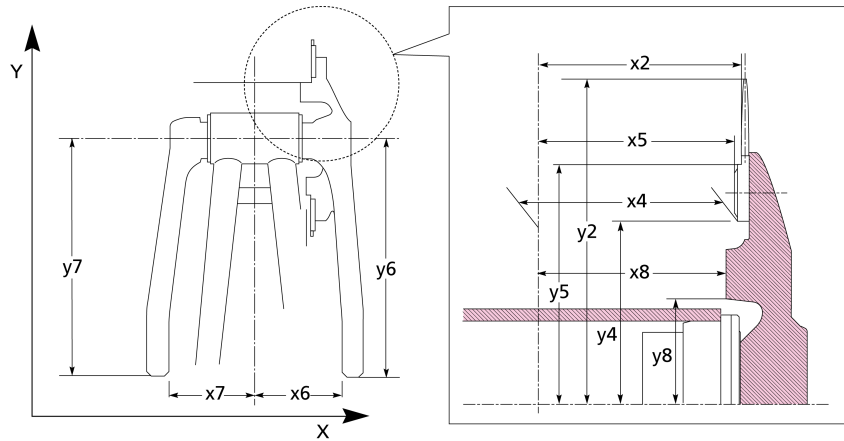
## Front triple



## Front double



## Front single



### NOTE

When using pressfit bottom bracket, please take special care for  $X_4$ ,  $Y_4$  dimension of the crankset to avoid interference between inner ring chainring and the outer side of the bottom bracket shell of the frame.

# Y dimensions C-123

Speed	Model No.	Gear	y1 (mm)	y2 (mm)	y3 (mm)	y4 (mm)	y5 (mm)	y6 (mm)	y7 (mm)	y8 (mm)
11	FC-R9100 FC-R9100-P	55-42T	-	113.1	88.2	46.9	80.2	195.5	195.5	-
		54-42T	-	111.1	88.2	46.9	80.2	195.5	195.5	-
		53-39T	-	109.1	82.2	46.9	74.2	195.5	195.5	-
		52-36T	-	107.1	76.1	46.9	68.2	195.5	195.5	-
		50-34T	-	103.0	72.1	46.9	64.0	195.5	195.5	-
	FC-R8000	53-39T	-	109.1	82.2	46.4	71.9	191.9	191.9	-
		52-36T	-	107.1	76.1	46.4	65.9			
		50-34T	-	103.0	72.1	46.4	63.0			
		46-36T	-	95.4	76.1	46.4	65.9			
	FC-R7000	53-39T	-	109.1	82.2	46.4	71.9	191.9	191.9	-
		52-36T	-	107.1	76.1	46.4	65.9			
		50-34T	-	103.0	72.1	46.4	63.0			
	FC-R5510	52-36T	-	107.1	76.1	-	67.3	193.4	193.4	-
		50-34T	-	103.0	72.1	-	64.2	193.4	193.4	-
		46-36T	-	95.4	76.1	-	67.3	193.4	193.4	-
	FC-RX810-2	48-31T	-	99.0	66.1	32.0	55.7	193.4	193.4	-
FC-RX600-11	46-30T	-	95.0	64	-	55.7	193.4	193.8	-	
FC-RX810-1	42T	-	88.7	-	45.9	60.6	193.4	193.4	33.0	
	40T	-	84.6	-	45.9	60.6	193.4	193.4	33.0	
FC-RX600-1	40T	-	84.5	-	-	62	192.1	192.3	-	
10	FC-5703	50-39-30T	103.8	81.6	64.2	26.9	43.6	192.8	192.8	-
	FC-4703	50-39-30T	103.8	81.6	64.2	26.9	52.6	193.6	193.6	-
	FC-4700	52-36T	-	107.3	76.1	-	68.2	193.6	193.6	-
		50-34T	-	103.8	70.8	-	64.2			
		48-34T	-	99	70.8	-	63.1			
	FC-R460	48-34T	-	99.2	70.8	-	64.0	192.7	192.7	-
		46-34T	-	95.7	70.8	-	64.0			
	FC-R5400	50-34T	-	103.8	70.8	-	-	192.7	192.7	-
FC-CX50	46-36T	-	95.8	75.1	-	67.9	192.8	192.8	-	
FC-RX600-10	46-30T	-	95	64	28.8	55.7	192.1	192.3	-	
9	FC-R3030	50-39-30T	103.8	81.6	63.4	26.9	43.6	194.1	193.0	-
	FC-R3000	50-34T	-	103.8	70.8	-	-	194.1	193.0	-
	FC-R345	50-34T	-	103.9	70.8	-	63.7	192.1	192.1	-
8	FC-R2030	50-39-30T	103.8	81.7	63.5	23.4	43.6	193.3 193.9	193.3 193.9	-
	FC-A073	50-39-30T	103.9	81.8	63.6	23.4	41.7	187	187	-
	FC-R2000	50-34T	-	103.8	70.8	-	-	193.9	193.9	-
	FC-RS200	50-34T	-	103.9	70.8	-	-	192.1	192.1	-
		46-34T	-	103.9	70.8	-	-	192.1	192.1	-
FC-A070	50-34T	-	103.9	70.8	-	-	187	187	-	
TRACK	FC-7710 (1/2 x 1/8 inch)	-	-	114.7	-	-	-	193.0	193.0	-
	FC-7710 (1/2 x 3/32 inch)	-	-	114.7	-	-	-	193.0	193.0	-

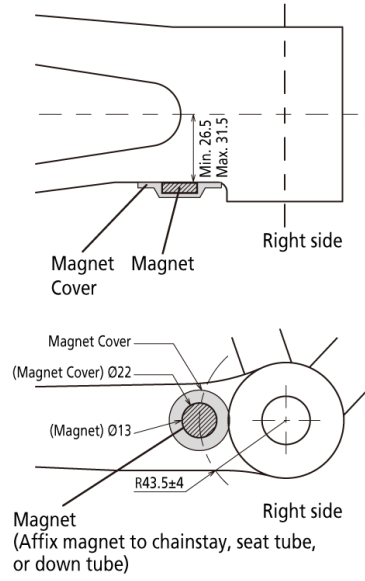
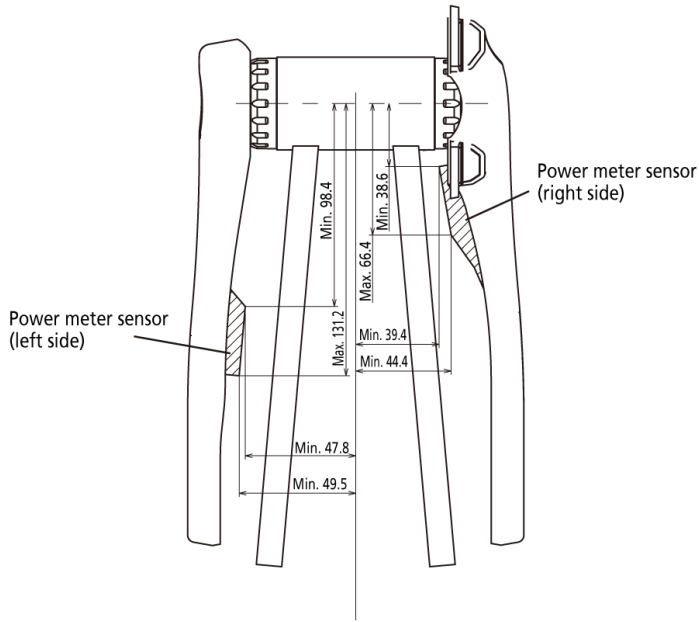
# X dimensions C-124

9

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-R9100 FC-R9100-P	55-42T	43.5	-	46.0	37.8	36.3	35.2	56.4	56.4	-
		54-42T	43.5	-	46.0	37.8	36.3	35.2	56.4	56.4	-
		53-39T	43.5	-	46.0	37.8	36.3	35.2	56.4	56.4	-
		52-36T	43.5	-	46.0	37.8	36.3	35.2	56.4	56.4	-
		50-34T	43.5	-	46.0	37.8	36.3	35.2	56.4	56.4	-
	FC-R8000	53-39T	43.5	-	46.0	37.8	36.6	35.4	56.9	57.4	-
		52-36T	43.5	-	46.0	37.8	36.6	35.4	56.9	57.4	-
		50-34T	43.5	-	46.0	37.8	36.6	35.4	56.9	57.4	-
	FC-R7000	46-36T	43.5	-	46.0	37.8	36.6	35.4	56.9	57.4	-
		53-39T	43.5	-	46.0	37.8	37.4	35.3	56.9	57.4	-
		52-36T	43.5	-	46.0	37.8	37.4	35.3	56.9	57.4	-
	FC-RS510	50-34T	43.5	-	46.0	37.8	-	35.6	58.9	59.9	-
		52-36T	43.5	-	46.0	37.8	-	35.6	58.9	59.9	-
		46-36T	43.5	-	46.0	37.8	-	35.6	58.9	59.9	-
	FC-RX810-2	48-31T	46.9	-	48.5	40.3	40.4	40.3	59.3	60.0	-
	FC-RX600-11	46-30T	46.9	-	48.5	40.3	-	39.1	60	59.9	-
	FC-RX810-1	42T	49.7	-	46.7	-	44.5	44.5	59.3	60.0	45.4
40T		49.7	-	46.7	-	44.5	44.5	59.3	60.0	45.4	
FC-RX600-1	40T	49.7	-	46.7	-	-	44.5	59.5	59.2	-	
10	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-4700	52-36T	43.5	-	45.9	38.0	-	35.8	59.2	60.2	-
		50-34T	43.5	-	45.9	38.1	-	35.8	59.2	60.2	-
		48-34T	43.5	-	46	38.1	-	35.6	59.2	60.2	-
	FC-R460	48-34T	43.5	-	45.9	38.1	-	36.5	59.3	60.2	-
		46-34T	43.5	-	45.9	38.1	-	36.5	59.3	60.2	-
	FC-RS400	50-34T	43.5	-	45.9	38.1	-	-	59.3	60.2	-
FC-CX50	46-36T	43.5	-	45.8	37.9	-	36.1	59.4	60.4	-	
FC-RX600-10	46-30T	46.9	-	48.5	40.3	-	39.1	59.5	59.2	-	
9	FC-R3030	50-39-30T	45.0	51.8	44.2	36.1	36.0	34.3	65.2	63.0	-
	FC-R3000	50-34T	43.5	-	45.8	38.1	-	-	59.2	60.0	-
	FC-R345	50-34T	43.5	-	45.5	37.8	-	36.0	61.0	59.4	-
8	FC-R2030	50-39-30T	45.0	51.7	44.0	36.0	36.1	34.1	64.0	62.5	-
	FC-A073	50-39-30T	45.0	51.5	43.9	35.9	35.9	34.9	70.0	69.3	-
	FC-R2000	50-34T	43.5	-	46.0	38.4	-	37.4	59.8	60.5	-
	FC-RS200	50-34T	43.5	-	45.9	38.3	-	36.5	61.4	61	-
		46-34T	43.5	-	45.8	38.3	-	39.1	61.4	61	-
FC-A070	50-34T	43.5	-	45.9	38.3	-	38.4	67.7	69.7	-	
TRACK	FC-7710 (1/2 x 1/8 inch)	-	42.5	-	39.4	-	-	-	52.5	52.5	-
	FC-7710 (1/2 x 3/32 inch)	-	42.5	-	39.9	-	-	-	52.5	52.5	-

# Power meter dimensions C-501

## FC-R9100-P



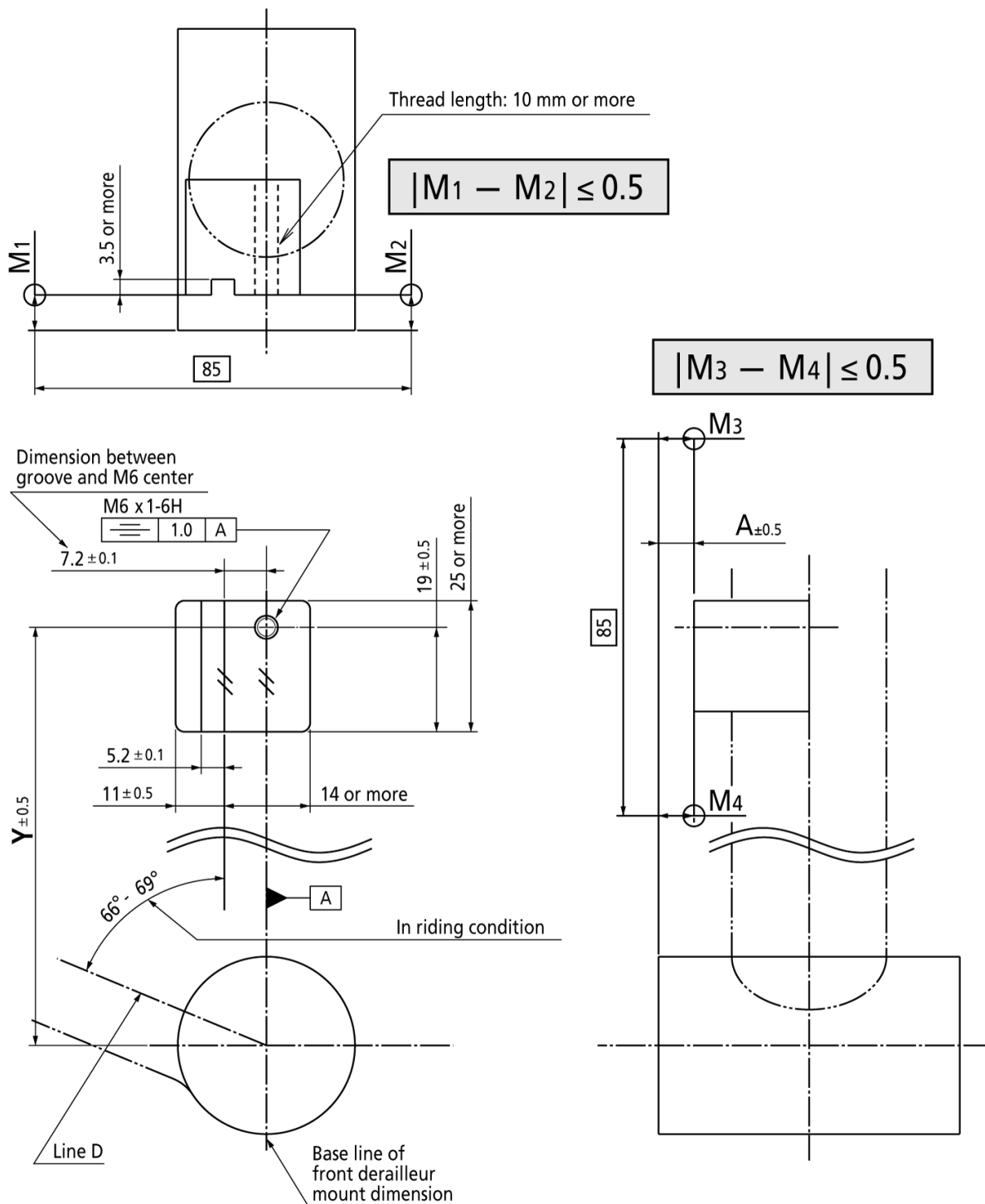
## Direct mount type [MTB]

C-576

### Frame requirement and compatibility [MTB] C-577

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

#### SM-CD800-D



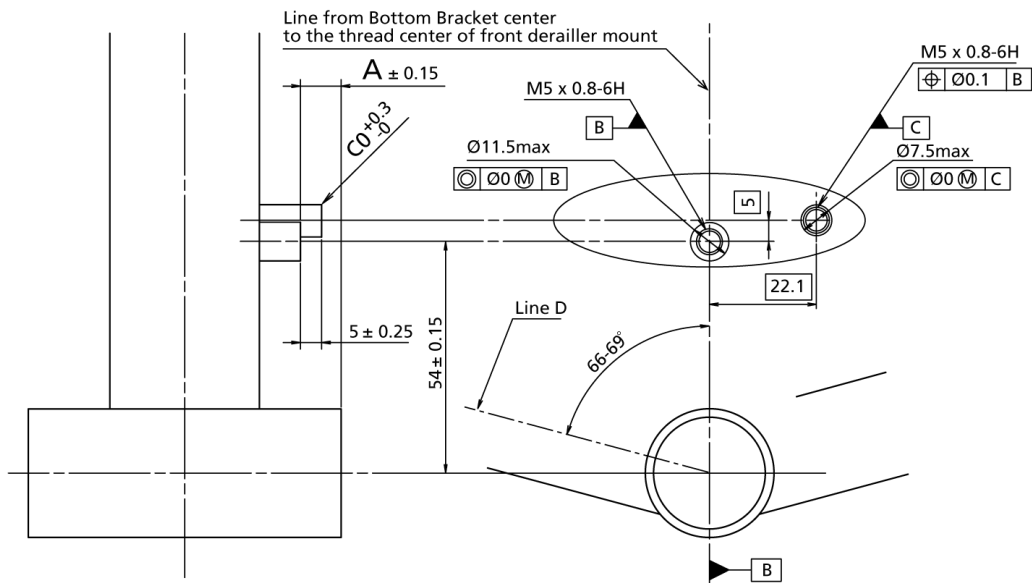
Bottom bracket type	Bottom bracket shell width (mm)	A dimension (mm)
Threaded	68.0	8.0
	73.0	10.5
Press-Fit	89.5 (symmetric)	18.75
	92.0 (asymmetric)	21.25



## Frame requirement and compatibility [MTB] C-579

The frame should be kept as following dimensions.

### SM-CD800-E

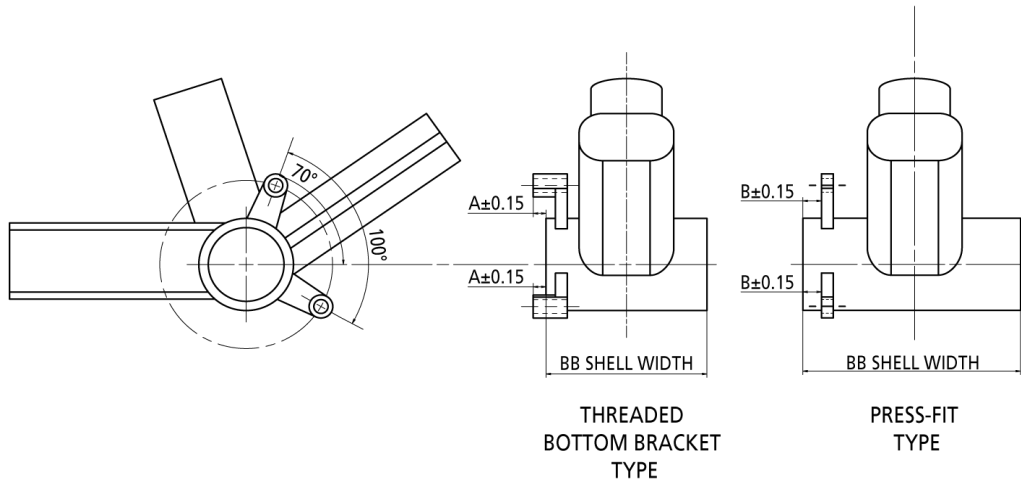


Bottom bracket type	Bottom bracket shell width (mm)	A dimension (mm)
Threaded	68.0	7.0
	73.0	9.5
Press-Fit	89.5 (symmetric)	17.75
	92.0 (asymmetric)	20.25

## Frame requirement and compatibility [MTB] C-581

The frame should be kept as following dimensions.

**SM-CD800-I**



### For 52 mm chain line

Bottom bracket type	Bottom bracket shell width (mm)	A dimension (mm)	B dimension (mm)
Threaded	68.0	5.4	-
	73.0	2.9	-
Press-Fit	89.5 (symmetric)	-	5.35
	92.0 (asymmetric)	-	7.85

\* ISCG05 type

### For 56.5 mm chain line

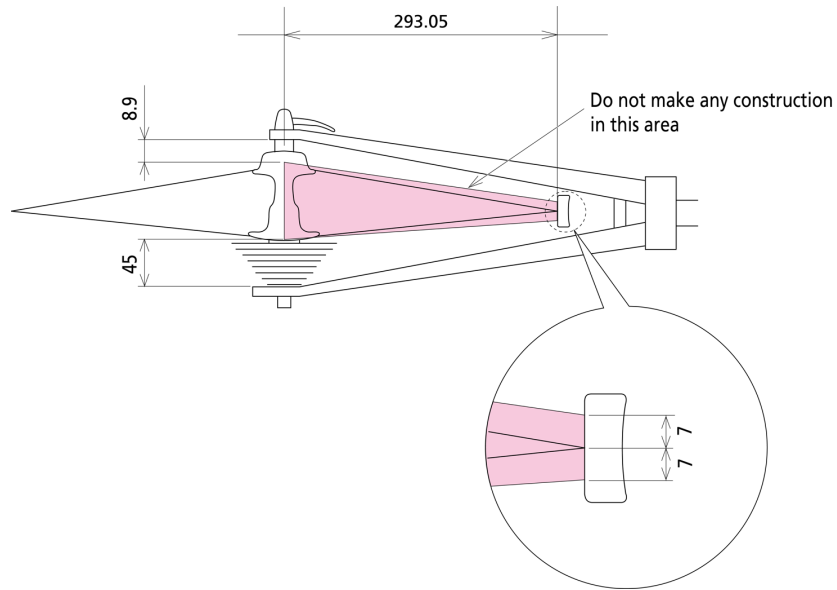
Bottom bracket type	Bottom bracket shell width (mm)	A dimension (mm)	B dimension (mm)
Threaded	68.0	9.9	-
	73.0	7.4	-
Press-Fit	89.5 (symmetric)	-	0.85
	92.0 (asymmetric)	-	3.35

\* ISCG05 type

## Dimensions for chainstay [ROAD]

C-126

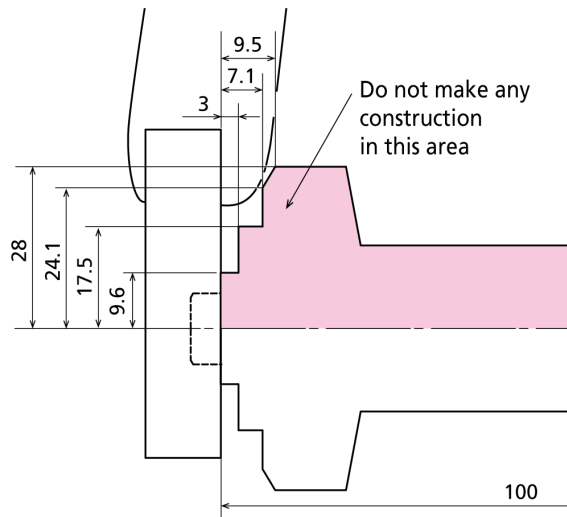
### SHIMANO wheel C-127



## Dimensions for front fork [ROAD]

C-128

### SHIMANO wheel C-129



## Bottom bracket cable guide

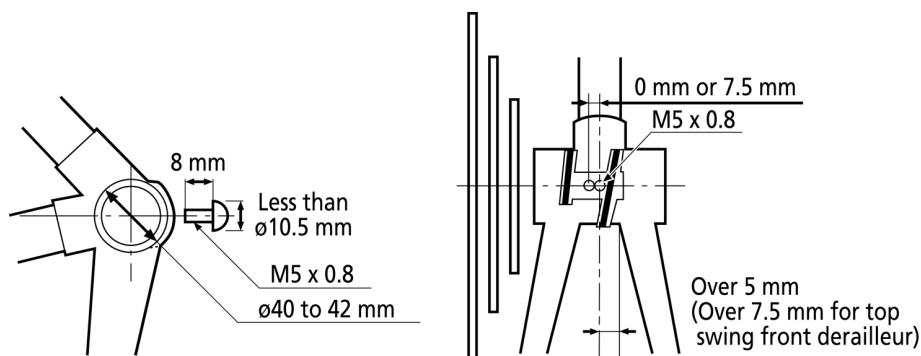
C-131

### Bottom bracket cable guide installation C-132

And to keep this performance,

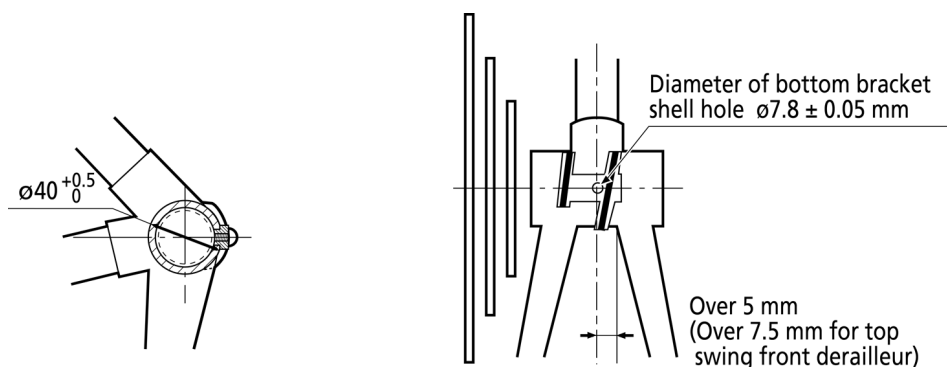
- Assemble bottom bracket cable guide on frame with no clearance.
- Don't make inner cable touch with frame.

#### SM-SP17M, SM-SP18M (screw on type)

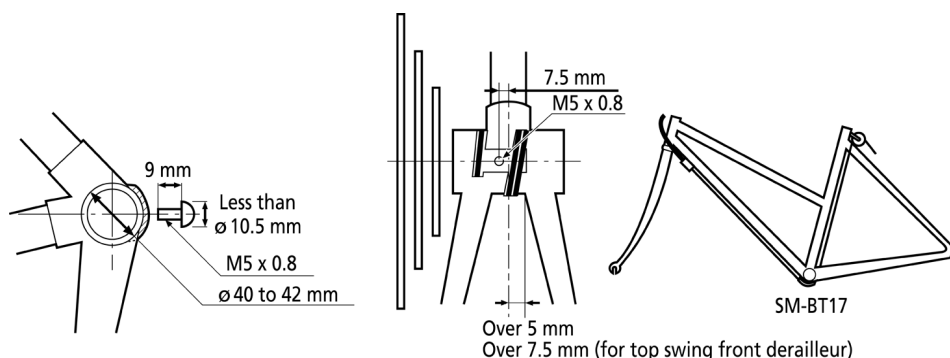


#### SM-SP17, SM-SP18T (snap on type)

(Requires ø7.8 mm hole in bottom bracket shell.)

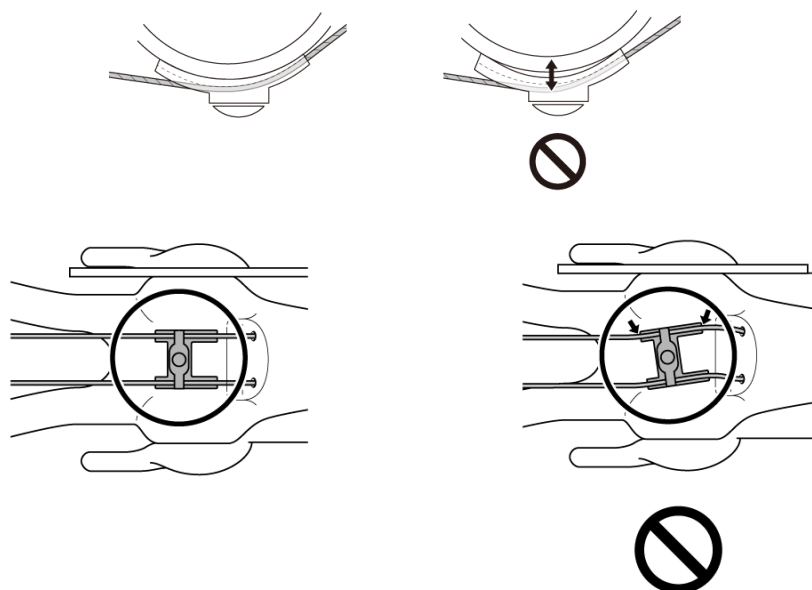


#### SM-BT17 (screw on type for mixte frames)

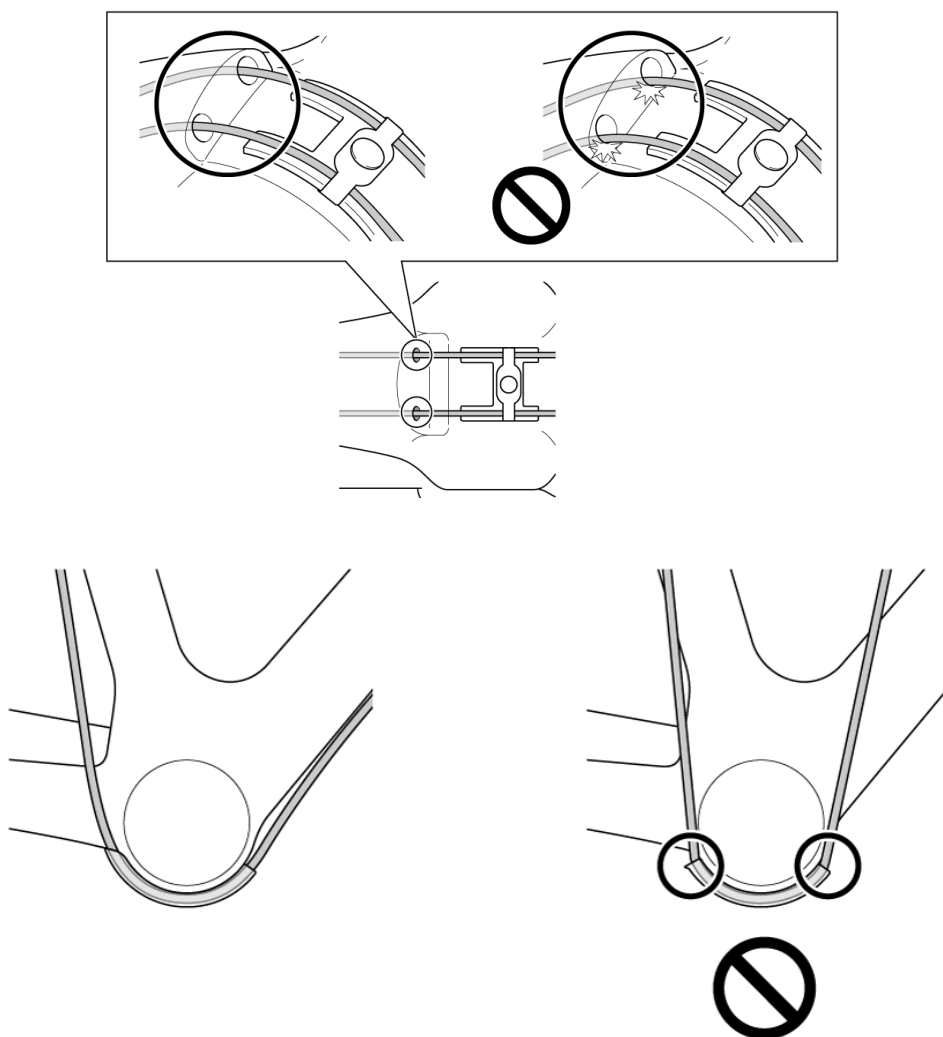


## Fixing of cable guide C-133

Gap between hanger shell and cable guide



## Interference with frame C-134



## 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.

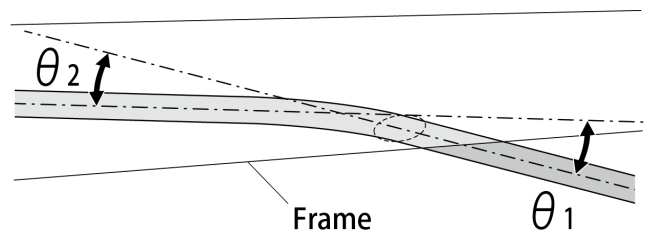
1. Cable routing method.
  - \*Curvature (Recommended minimum curvature: R30mm)
  - \*Enough slack for suspension and handlebar operation
2. Method of securing the cable to the frame.
3. Relationship between the length of cable from the rear derailleur to the securing location and the cable securing 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

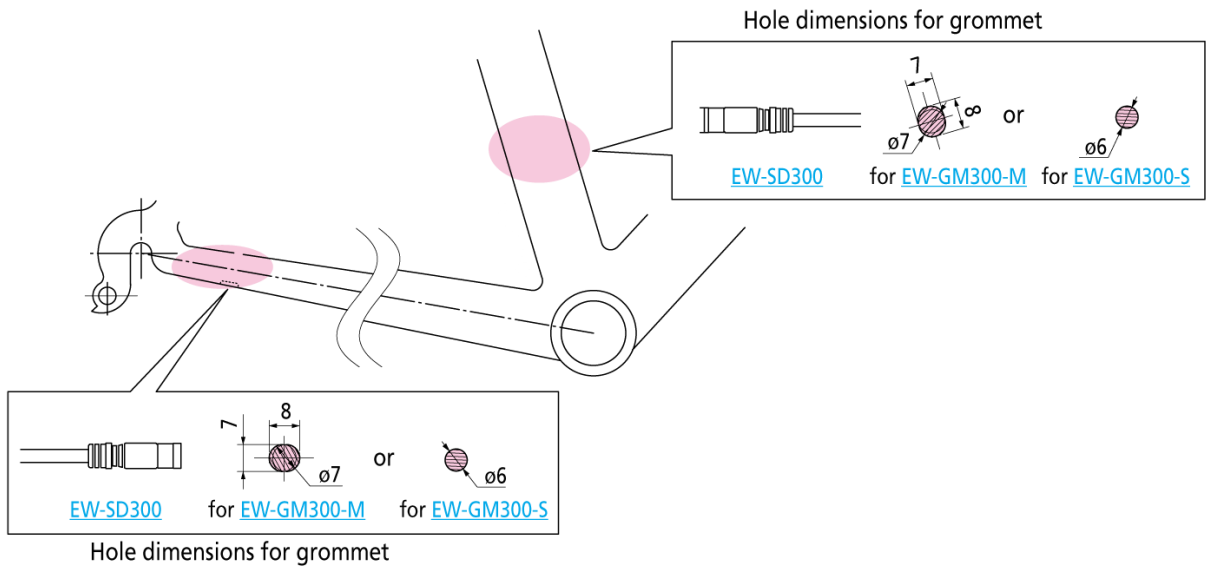
The route of the cable should be as straight as possible as shown in the diagram, smaller  $\theta_1$  and  $\theta_2$  are better.



## Seat tube / chainstay hole dimensions

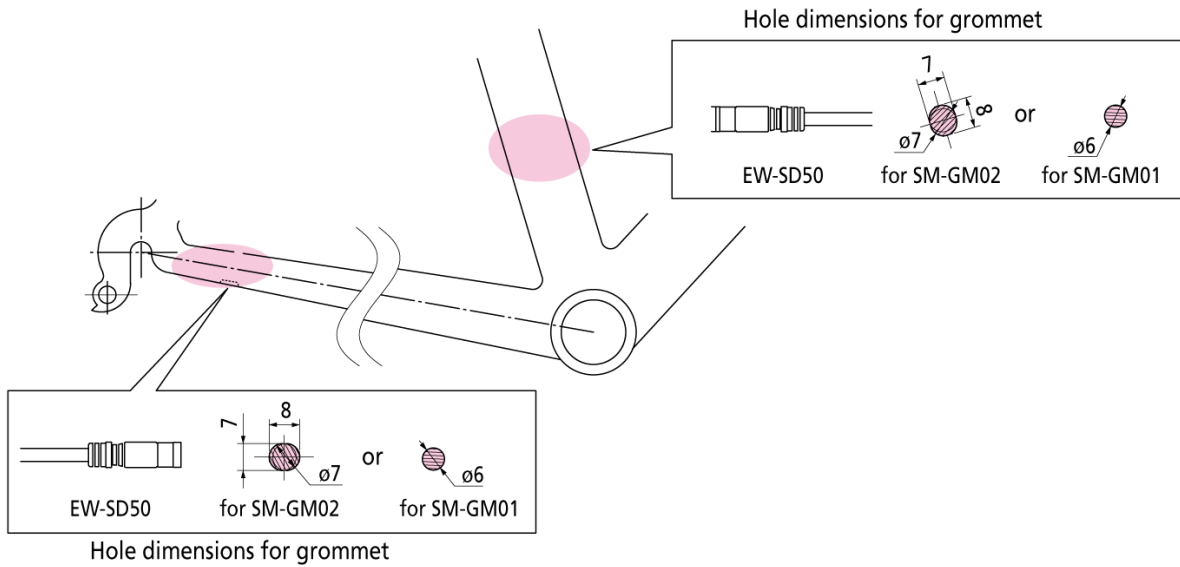
C-140

[EW-SD300](#) / [EW-GM300-S](#) / [EW-GM300-M](#)



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

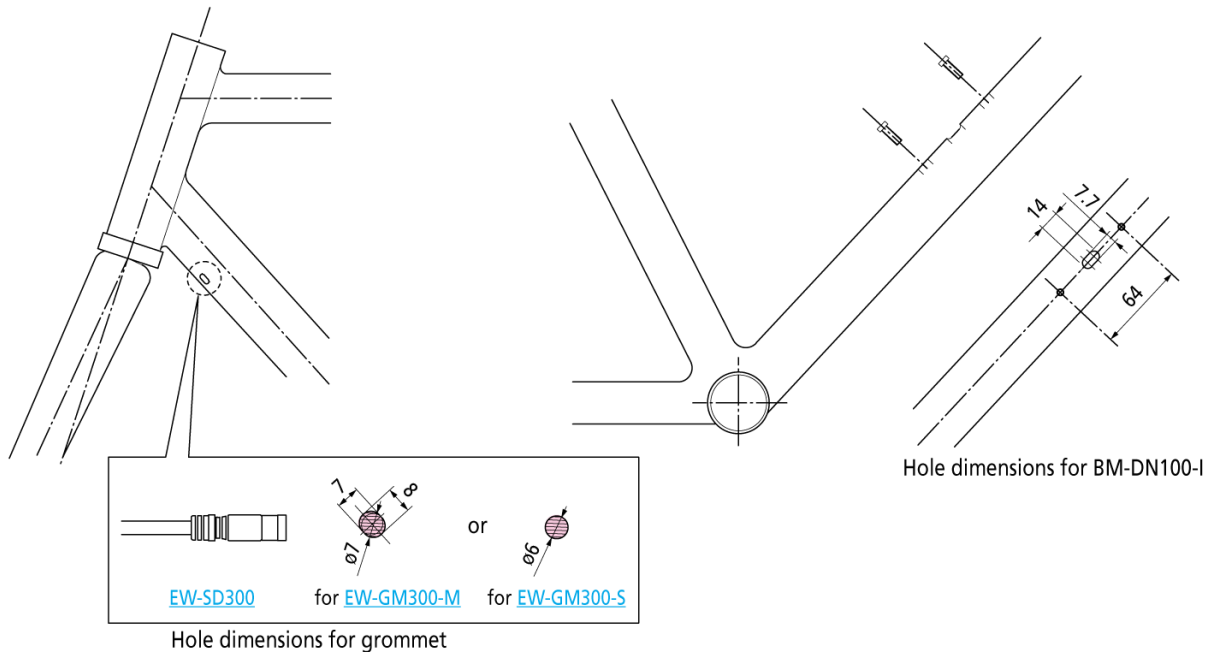
### EW-SD50 / SM-GM02 / SM-GM01



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

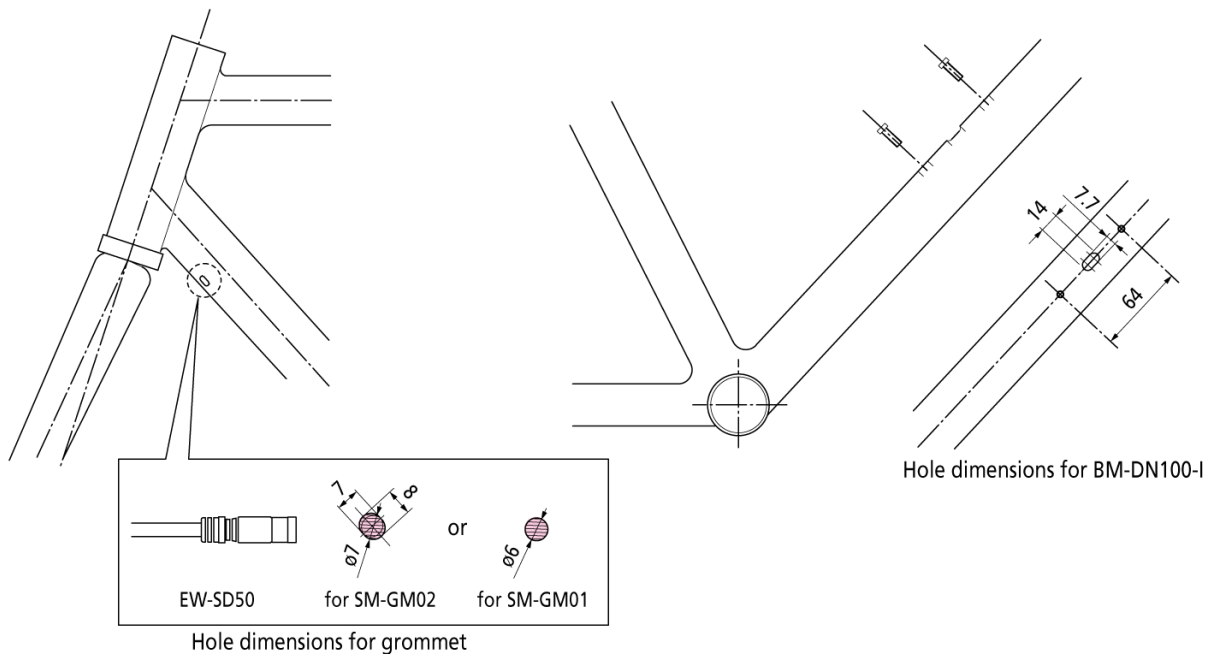
# Down tube hole dimensions

[EW-SD300](#) / [EW-GM300-S](#) / [EW-GM300-M](#)



**NOTE**  
When routing the SD300 electric wire using BM-DN100-I, make sure in advance that the hole from which the electric wire emerges from BM-DN100-I is aligned with the hole in the frame through which it will enter the frame.

[EW-SD50](#) / [SM-GM02](#) / [SM-GM01](#)



**NOTE**  
When routing the SD50 electric wire using BM-DN100-I, make sure in advance that the hole from which the electric wire emerges from BM-DN100-I is aligned with the hole in the frame through which it will enter the frame.