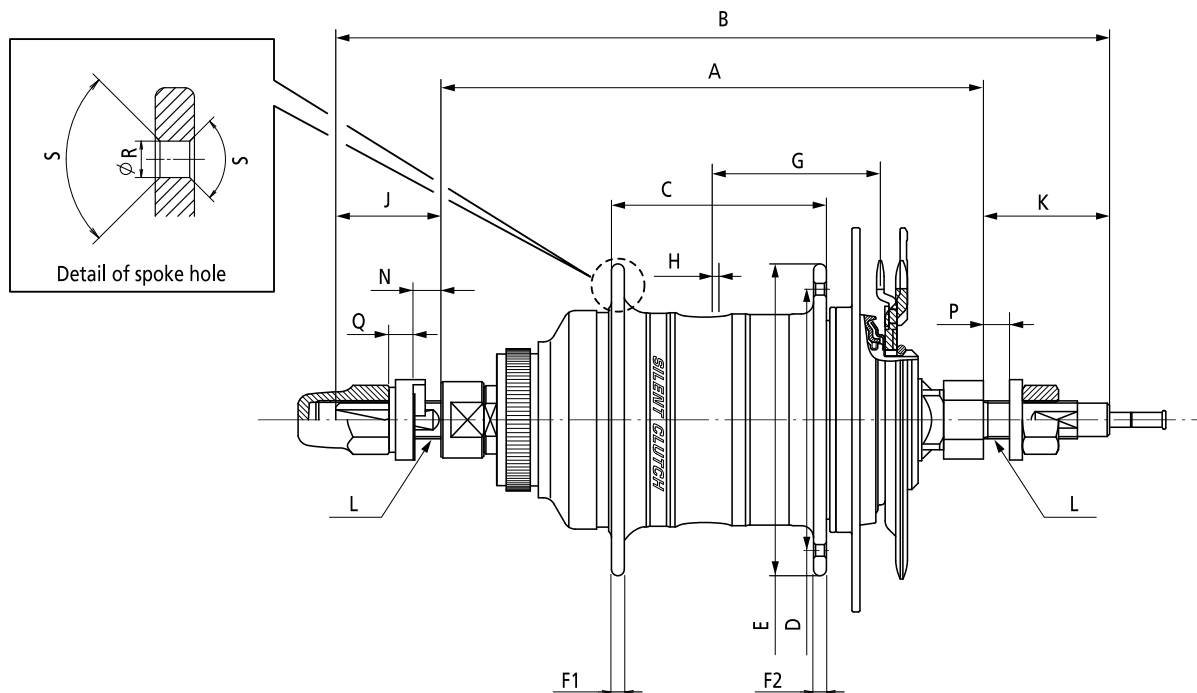
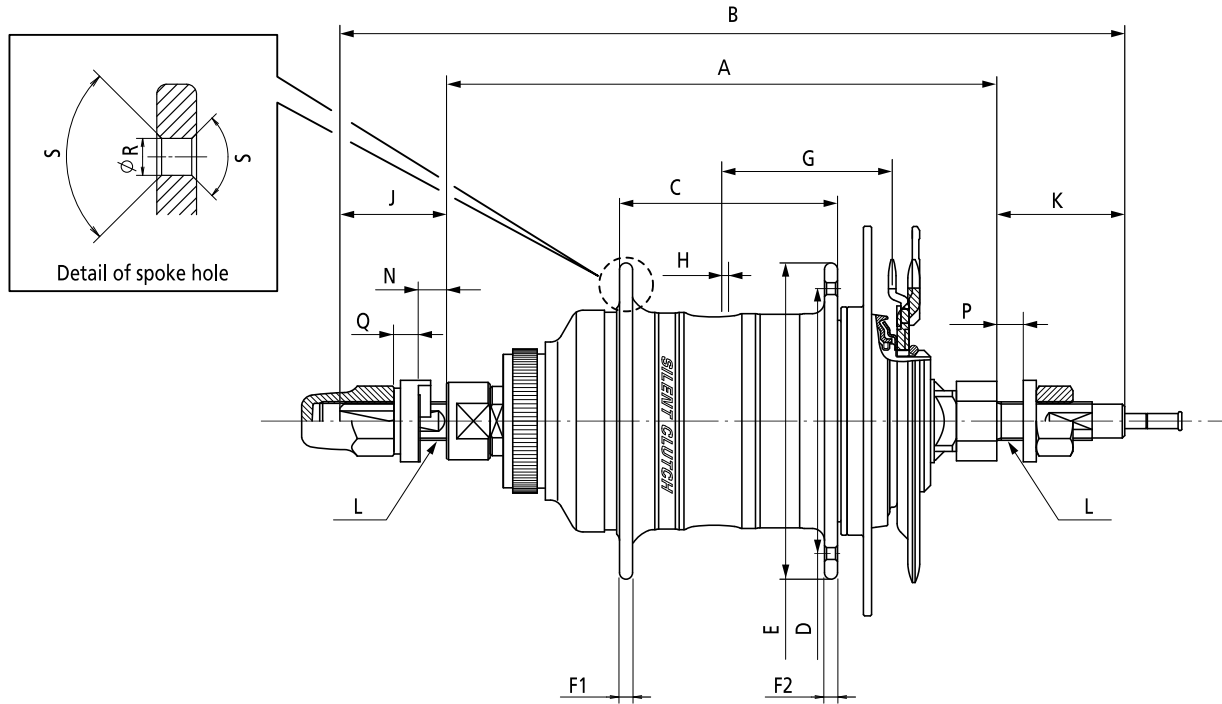


Series		Nexus	
	Model No.	SG-5R35	SG-5R30
	Speed	5	5
	Gear ratio: Total	206%	206%
	Sales area	Japan	Japan
	Brake type	Hub roller brake	Hub roller brake
	Hub shell material	Aluminum	Steel
	Spoke size	#13 / #14	#13 / #14
A	Over locknut dim. / O.L. D. (mm)	132	132
B	Axle length (mm)	184	210
	Push rod length (mm)	-	-
C	Flange distance (mm)	54.6	54.6
D	Spoke hole P.C.D. (mm)	76	76
	Butterfly spoke hole	-	-
E	Flange diameter (mm)	88.6	86.0
F	Flange width (mm): F1(left)	3.6	2.5
	Flange width (mm): F2(right)	3.4	2.3
G	Chain line (mm)	15T(flat gear) use	-
		Inward assembly	41.8
		Outward assembly	46.8
H	Dishing distance (mm)	0.3	0.3
J	Axle length from hub (left)	26	39
K	Axle length from hub (right)	26	39
L	Axle size	BC3 / 8 TPI 26	BC3 / 8 TPI 26
N	Dropout width (left, includes stay etc.)	4 - 9	4 - 20
P	Dropout width (right, includes stay etc.)		
Q	Non-turn washer width	6.4	6.4
R	Spoke hole diameter (mm)	2.9	Left: 2.85 Right: 2.8
S	Spoke hole chamfer	90°	90°



Series		Nexus										
Model No.		SG-3R40					SG-3C41			SG-3D55	SG-3R75-A	
Speed		3										
Gear ratio: Total		186%										
Sales area		All										
Brake type		Hub roller brake					Coaster brake			Disc brake	Hub roller brake	
Hub shell material		Steel					Steel			Aluminum	Steel	
Spoke size		#13 / #14					#13 / #14			#13 / #14	#13 / #14	
A	Over locknut dim. / O.L.D. (mm)	120	120	127	127	130	120	120	127	135	122	
B	Axle length (mm)	170.3	189.4	176.8	182.7	183.5	168	178	175	192.6	174.0	
	Push rod length (mm)	81.85	90.75	86.85	90.75	86.85	81.85	86.85	86.85	90.75	-	
C	Flange distance (mm)	53					57.5			53.5	51.1	
D	Spoke hole P.C.D. (mm)	74					59			65	83.5	
	Butterfly spoke hole	-										
E	Flange diameter (mm)	84					67.5			77.6	92.5	
F	Flange width (mm): F1(left)	2.3					2.3			3.2	2.7	
	Flange width (mm): F2 (right)	2.3					2.3			3.2	2.3	
G	Chain line (mm)	15T (flat gear) use	42.2	42.2	40.5	40.5	45.5	43.7	43.7	42.2	44.5	-
		Inward assembly	39.7	39.7	38	38	38	41.2	41.2	39.7	42	-
		Outward assembly	44.7	44.7	43	43	43	46.2	46.2	44.7	47	43.9
H	Dishing distance (mm)	0.8	0.8	2.5	2.5	2.5	1.2	1.2	2.7	1.67	3.6	
J	Axle length from hub (left)	22.5	32.7	22.5	24.5	22.5	21	26	21	26.2	26	
K	Axle length from hub (right)	27.4	36.3	27.5	31.4	30.8	27	32	26.6	31.4	26	
L	Axle size	BC3 / 8 TPI 26										
N	Dropout width (left, includes stay etc.)	4.0 - 7.5	8.5 - 17.0	4.0 - 7.5	7.5 - 11.5	4.0 - 7.5	4.0 - 7.5	9.0 - 12.5	4.0 - 7.5	6.5 - 10.0	4.0 - 9.0	
P	Dropout width (right, includes stay etc.)											
Q	Non-turn washer width	4.0					4.0			4.0 or 6.4	6.4	
R	Spoke hole diameter (mm)	2.7					2.7			2.7	Left: 2.95 Right: 2.8	
S	Spoke hole chamfer	105°					105°			90°	105°	



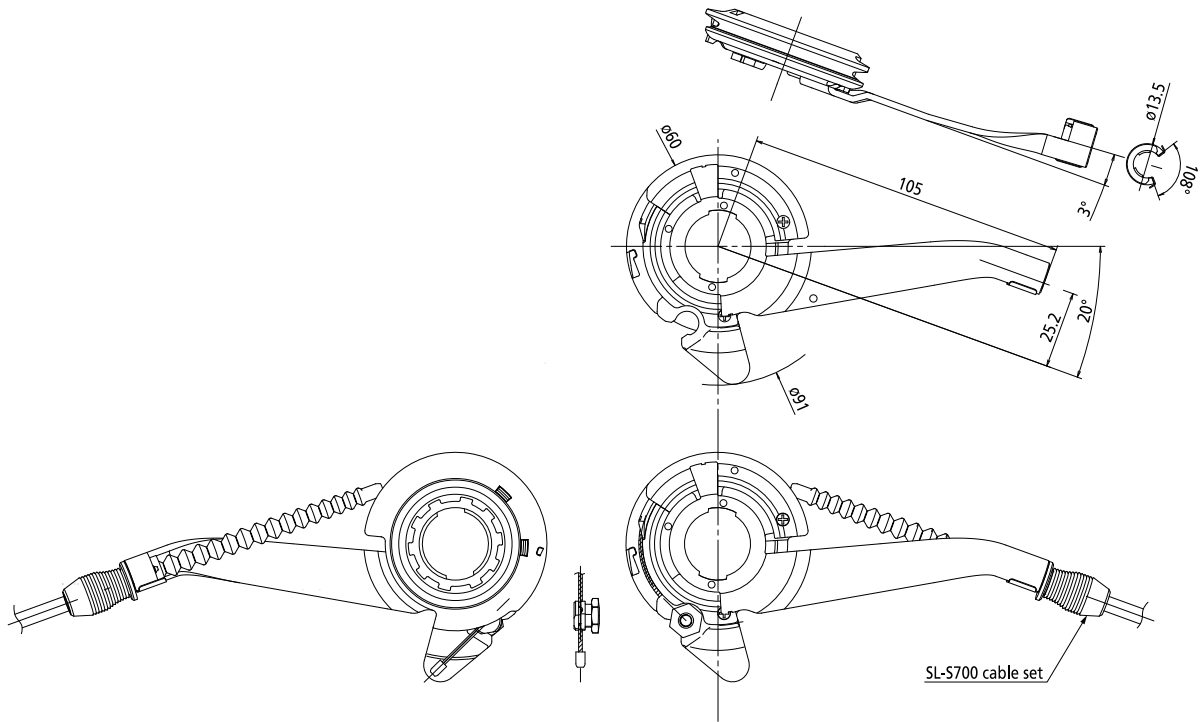
Series		Nexus					
Model No.		SG-3R42		SG-3R40		SG-3R75-A	
Speed		3		3		3	
Gear ratio: Total		186%		186%		158%	
Sales area		Japan		Japan		Japan	
Brake type		Hub roller brake		Hub roller brake		Hub roller brake	
Hub shell material		Steel		Steel		Steel	
Spoke size		#13 / #14		#13 / #14		#13 / #14	
A	Over locknut dim. / O.L.D. (mm)	120	120	120	120	122	
B	Axle length (mm)	181.8	191.8	181.8	191.8	193.0	
	Push rod length (mm)	81.85	86.85	81.85	86.85	-	
C	Flange distance (mm)	53.0		53.0		51.1	
D	Spoke hole P.C.D. (mm)	60.0		74.0		83.5	
	Butterfly spoke hole	X		-		-	
E	Flange diameter (mm)	70.0		84.0		92.5	
F	Flange width (mm): F1 (left)	3.0		2.3		2.7	
	Flange width (mm): F2 (right)	3.0		2.3		2.3	
G	Chain line (mm)	15T (flat gear) use		42.65	42.65	42.65	42.65
		Inward assembly		40.15	40.15	40.15	40.15
		Outward assembly		45.15	45.15	45.15	45.15
H	Dishing distance (mm)	0.35	0.35	0.35	0.35	3.6	
J	Axle length from hub (left)	34.0	39.0	34.0	39.0	37.0	
K	Axle length from hub (right)	28.3	33.3	28.3	33.3	34.0	
L	Axle size	BC3 / 8 TPI 26		BC3 / 8 TPI 26		BC3 / 8 TPI 26	
N	Dropout width (left, includes stay etc.)	5.5 - 10.5	10.5 - 15.5	5.5 - 10.5	10.5 - 15.5	15 - 20	
P	Dropout width (right, includes stay etc.)					12 - 17	
Q	Non-turn washer width	4.0		4.0		6.4	
R	Spoke hole diameter (mm) (left)	2.65		2.7	2.7	2.95	
	Spoke hole diameter (mm) (right)					2.8	
S	Spoke hole chamfer	105°		105°		105°	

# Cassette joint

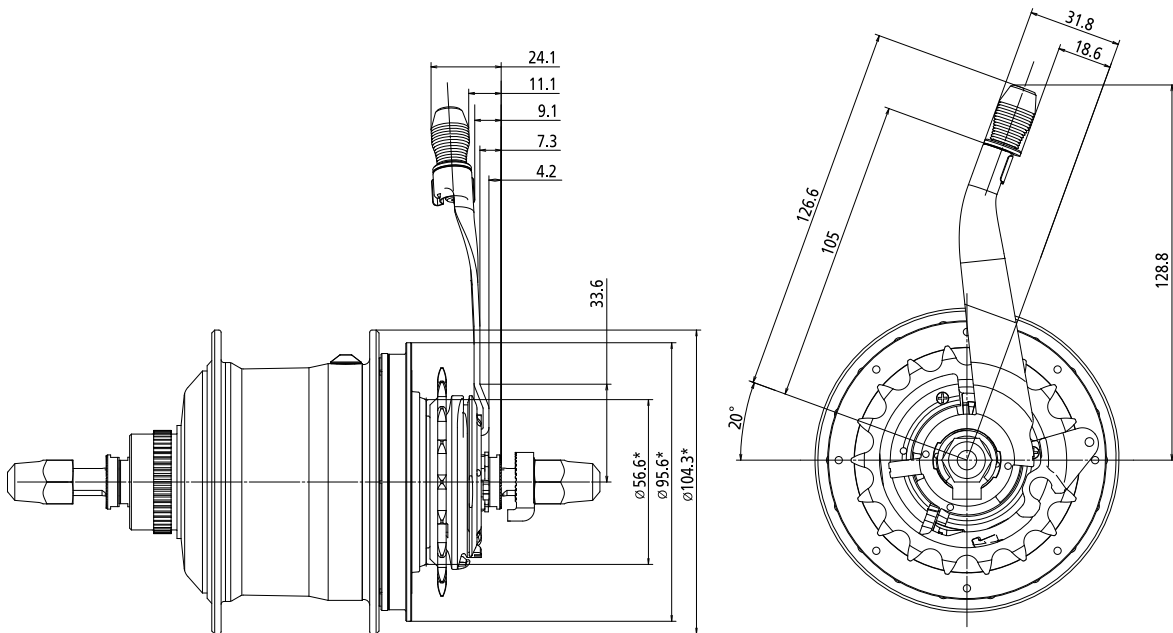
## ALFINE INTER-11 C-277

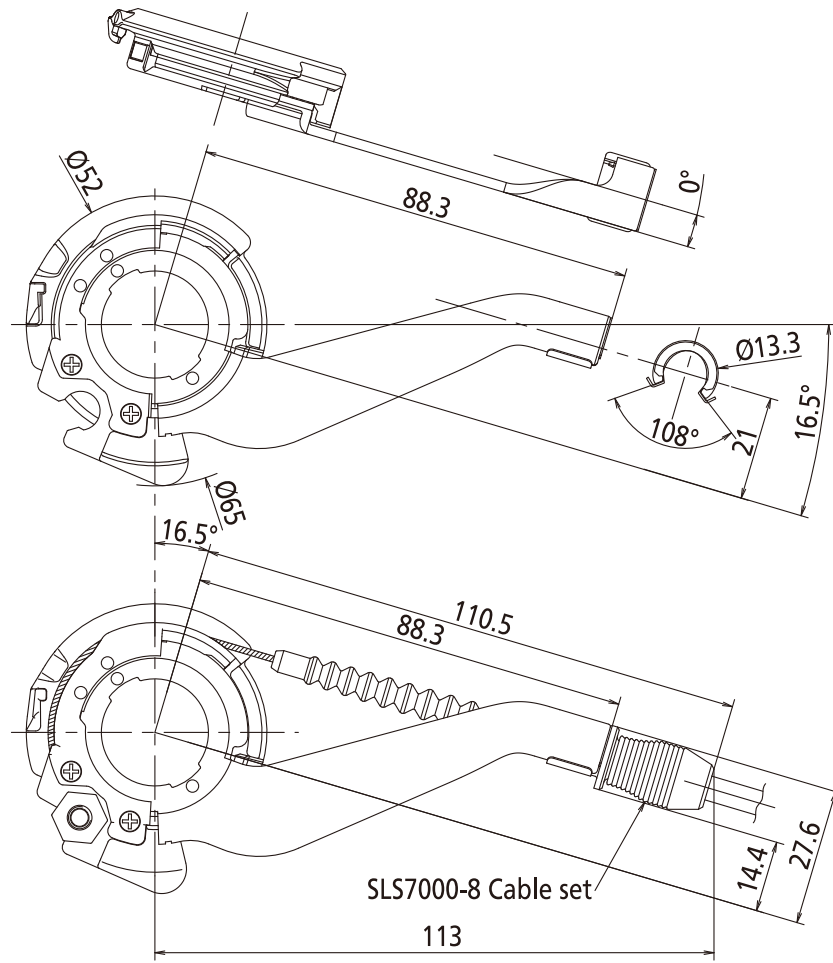
### CJ-S700

When designing the frame, make sure that there is no interference between the chain case and the hub.



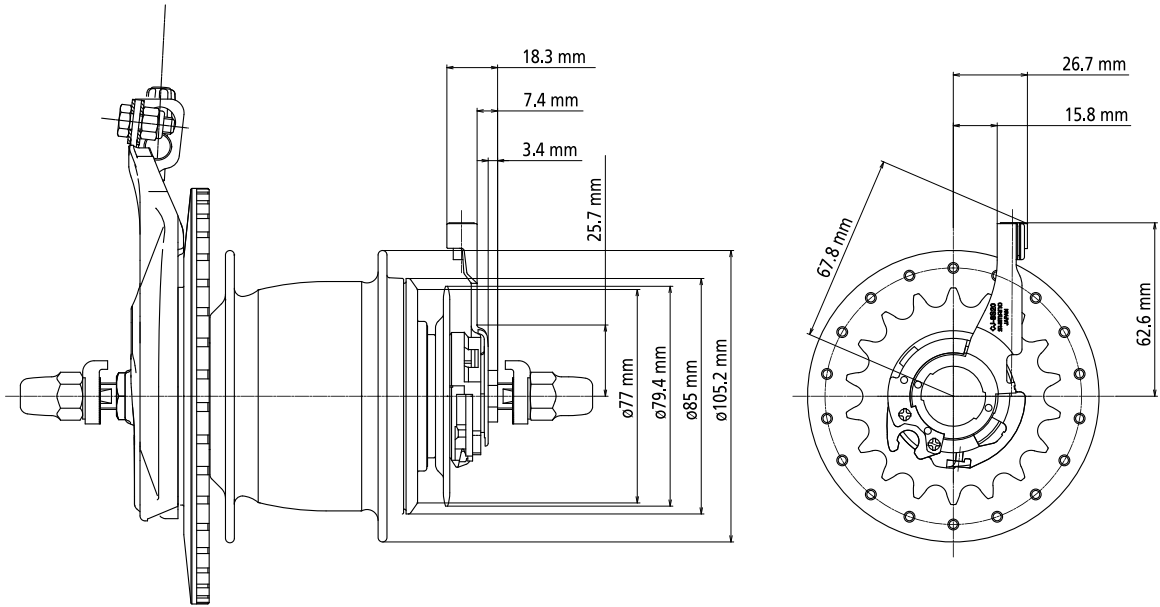
### CJ-S700 and SG-S700



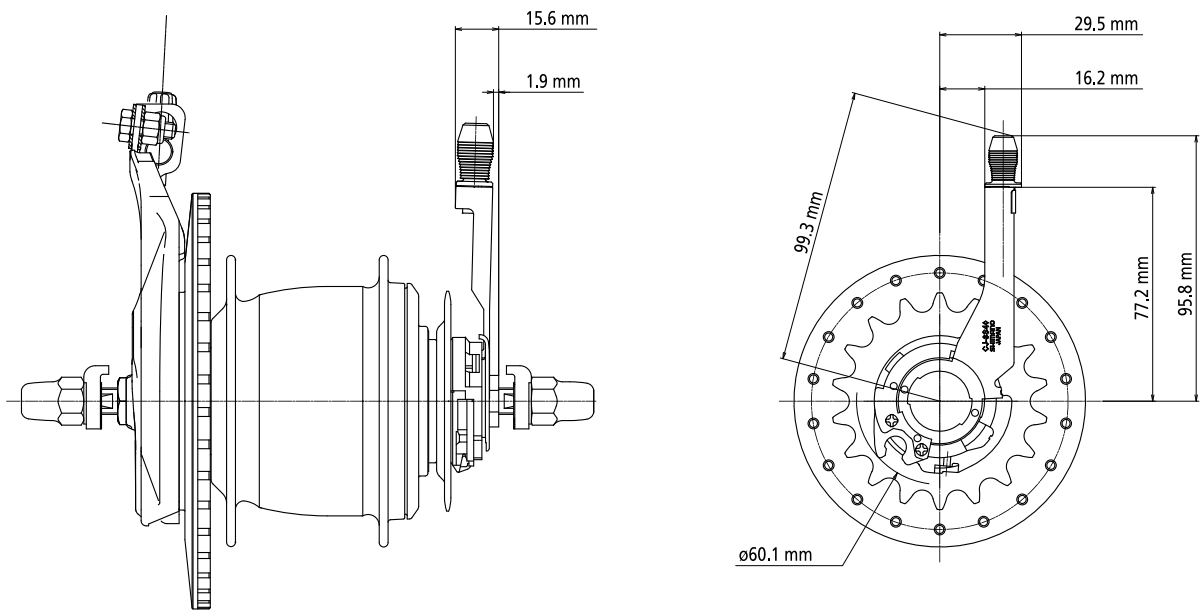


# Nexus INTER-8 C-279

## SG-C6000-8R / SG-C6010-8R and CJ-8520

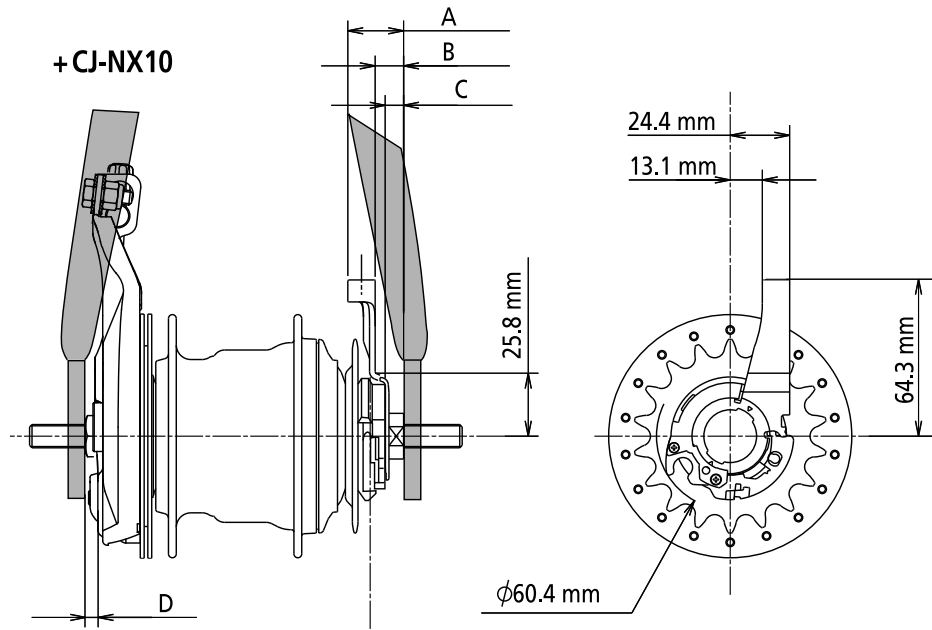


## SG-C6000-8R / SG-C6010-8R and CJ-8540



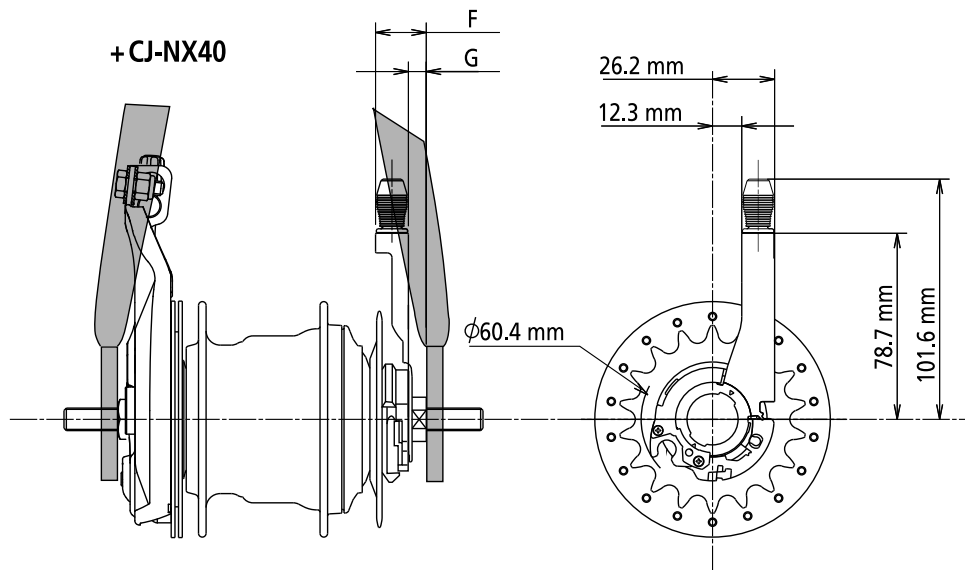
# Nexus INTER-7 C-280

## SG-C3000-7R, SG-C3000-7C

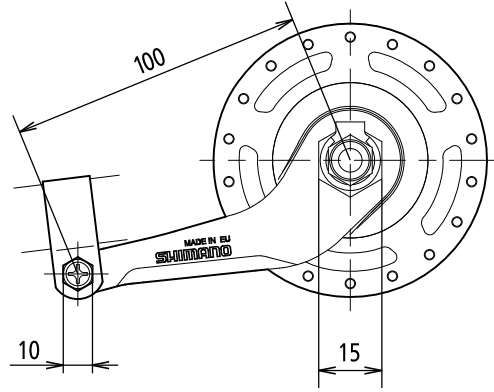


Model No.	A (mm)	B (mm)	C (mm)	D (mm)
SG-C3000-7R	20.8	9.4	6.1	3.1
SG-C3000-7C	18.2	6.8	3.5	-

## SG-C3000-7R, SG-C3000-7C

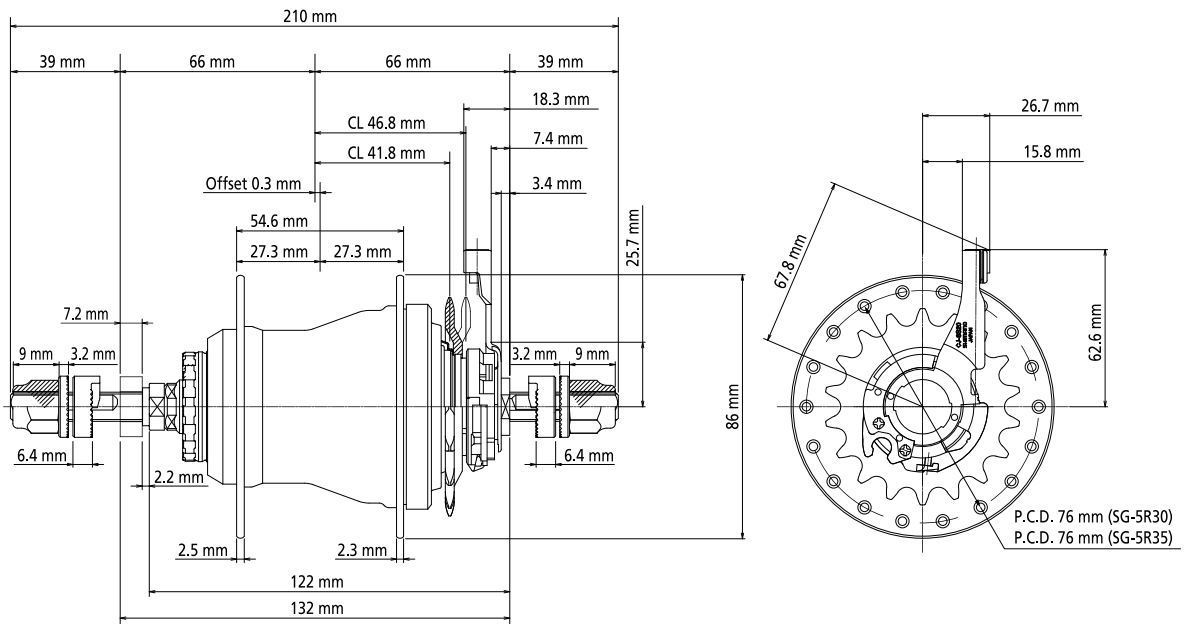


Model No.	F (mm)	G (mm)
SG-C3000-7R	19.1	5.0
SG-C3000-7C	16.5	2.4

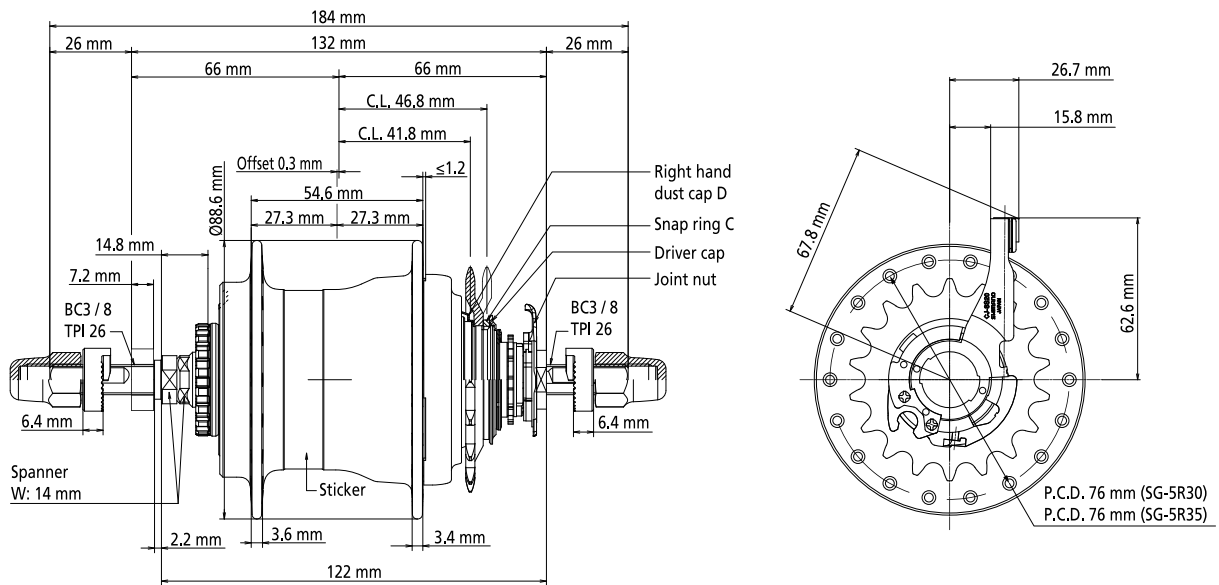


**Nexus INTER-5 C-281**

**SG-5R30 and CJ-8S20**

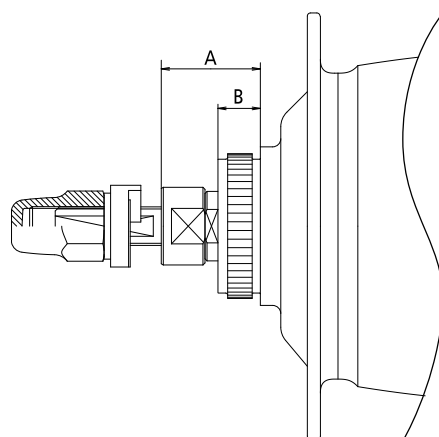


**SG-5R35**



# Installation of disc brake rotor

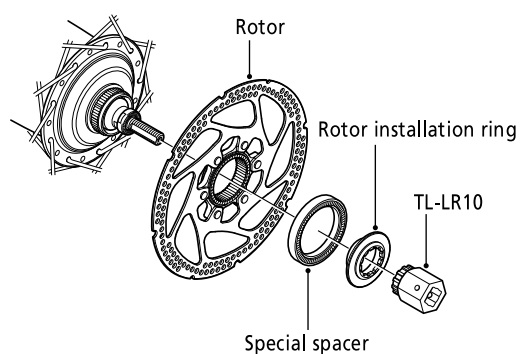
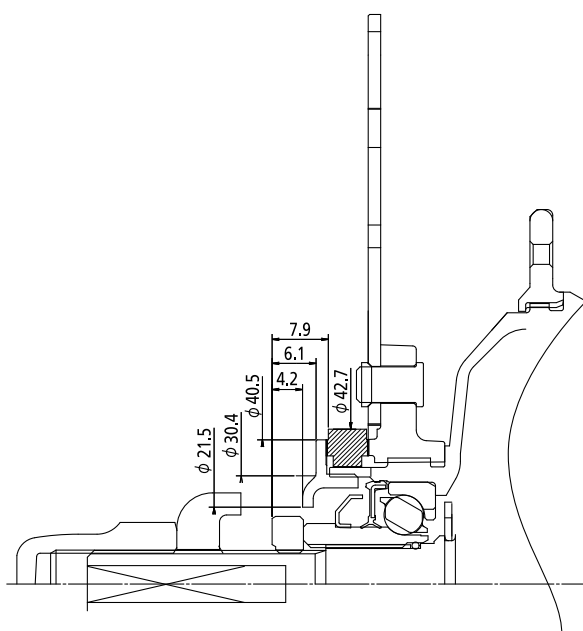
## Recommended genuine tool numbers C-283



Model No.	A (mm)	B (mm)	Tool
SG-S700 SG-S705	24.25	16.25	TL-LR10
SG-S7000-8 SG-S505	24.25	10.45	TL-LR10
SG-3D55	24.25	10.45	TL-LR10

## Special spacer is required for installation of rotor C-284

### SG-S700 / SG-S705



**Tightening torque:**  
40 N·m {347 in. lbs.}

## Spoke lacing

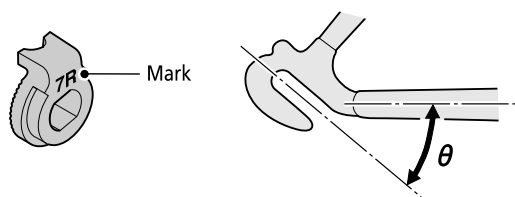
Use a wheel with 3x or 4x spoke lacing. Wheels with radial lacing cannot be used because the spokes and the wheel can be damaged when applying the brakes and brake noise can be generated.

## Recommended gear ratio

Series	Speed	Sprocket ratio	Front		Rear												
			Model No.	Gear	SM-GEAR										CS-S500		
					14	15	16	17	18	19	20	21	22	23	18	20	
ALFINE	11	1.8 - 2.0	FC-S501	45T	-	-	-	-	-	-	-	-	-	-	X	-	-
				42T	-	-	-	-	-	-	-	X	X	X	-	-	-
				39T	-	-	-	-	-	-	X	X	-	-	-	-	X
	8	2.0 - 2.25	FC-S501	45T	-	-	-	-	-	X	X	X	X	-	-	-	X
				42T	-	-	-	-	-	X	X	X	-	-	-	X	
				39T	-	-	-	-	X	X	-	-	-	-	X	-	
Nexus	8	2.0 - 2.2	FC-C6000	38T	-	-	-	-	X	X	-	-	-	-	-	-	
				33T	-	-	X	-	-	-	-	-	-	-	-		
	7	2.0 - 2.2	FC-C6000	38T	-	-	-	-	X	X	-	-	-	-	-	-	
				33T	-	-	X	-	-	-	-	-	-	-	-		
	5	1.9 - 2.1	FC-C6000	38T	-	-	-	-	X	X	X	-	-	-	-	-	
				33T	-	-	X	-	-	-	-	-	-	-	-		
	3	2.0 - 2.65	FC-C6000	38T	-	X	X	-	X	X	-	-	-	-	-	-	
				33T	X	X	X	-	-	-	-	-	-	-	-		

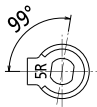

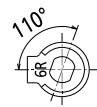

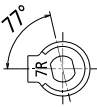

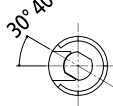

## Non-turn washer (for ALFINE INTER-11, 8 / Nexus INTER-8, 7, 5)

Use whichever non-turn washers match the shape of the dropouts. Different non-turn washers are used at the left and right sides.



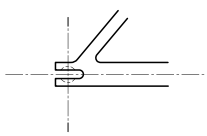
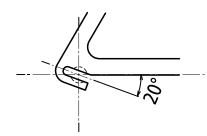
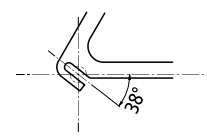
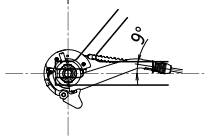
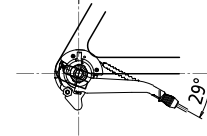
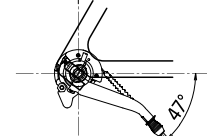
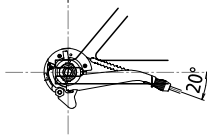
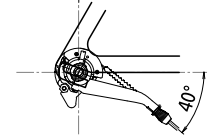
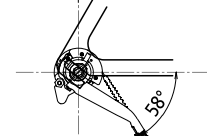
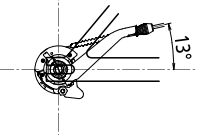
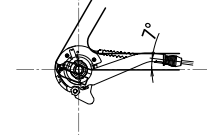
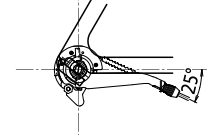
- The projecting parts should be on the dropout side.
- Install the non-turn washers so that the projecting parts are securely in the dropout grooves on either side of the hub axle.

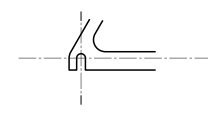
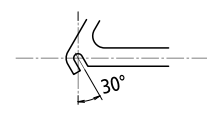
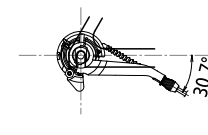
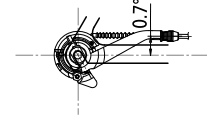
### Shape and Colour C-288

	For right hand side	For left hand side
5R 5L	 <p>5R: Yellow</p>	 <p>5L: Brown</p>
6R 6L	 <p>6R: Silver</p>	 <p>6L: White</p>
7R 7L	 <p>7R: Black</p>	 <p>7L: Gray</p>
8R 8L	 <p>8R: Dark blue</p>	 <p>8L: Dark green</p>

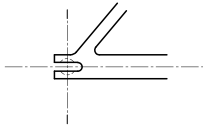
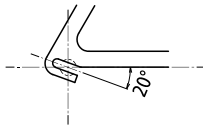
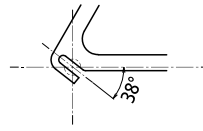
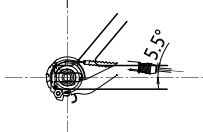
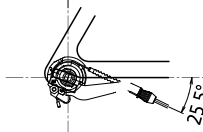
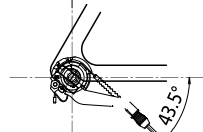
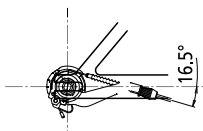
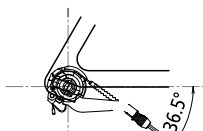
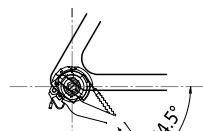
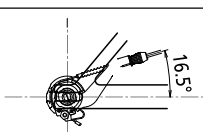
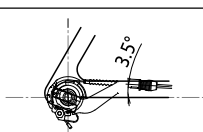
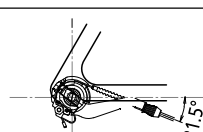
# Application chart C-289

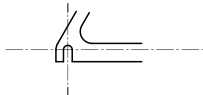
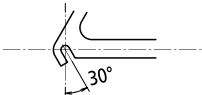
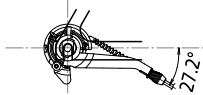
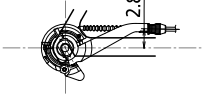
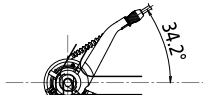
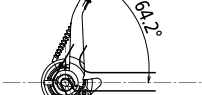
## INTER-11 (SG-S700 w/ CJ-S700)

	Reversed dropout	Standard dropout	
			
5R 5L			
6R 6L			
7R 7L			

	Vertical	
		
8R 8L		

**INTER-8 (SG-S7000-8 w/ CJ-S7000-8)**

	Reversed dropout	Standard dropout	
			
5R 5L			
6R 6L			
7R 7L			

	Vertical	
		
8R		
8L		

# NEXUS INTER-8,7,5,3 (SG-3R75)

	Reversed dropout	Standard dropout	
5R 5L			
6R 6L			
7R 7L			

	Vertical	
8R 8L		

## Push-rod length for Nexus INTER-3




C-290




Sales area	Model No.	Over locknut dim. (mm)	Axle length (mm)	Push rod length (mm)
All	SG-3D55	135	192.6	90.75
	SG-3R40	120	170.3	81.85
			189.4	90.75
			176.8	86.85
			182.7	90.75
			183.5	86.85
	SG-3R75-A	122	174.0	-
SG-3C41	120	168.0	81.85	
		178.0	86.85	
		175.0	86.85	
Japan	SG-3R42	120	181.8	81.85
			191.8	86.85
	SG-3R40		181.8	81.85
			191.8	86.85

# Dust cap information and sprocket compatibility

Series	Speeds	Model No.	Hub Body (Dust Cap XX)	Right hand dust cap Variation
ALFINE	11	SG-S705	Right hand dust cap A w / Seal for SG5700	Right hand dust cap D
		SG-S700		
	8	SG-S505	Right hand dust cap A w / Seal for SG5501	Right hand dust cap B for INTER-8
		SG-S7000-8		
Nexus	8	SG-C6060-8R SG-C6060-8D SG-C6060-8C	Right hand dust cap A (Y-34R 98110)	Right hand dust cap B for INTER-8
		11 Standard Spec SG-C6010-8R SG-C6010-8V SG-C6000-8R SG-C6000-8V <a href="#">SG-C6000-8D</a> SG-C6000-8C <a href="#">SG-C6000-8CD</a>	Right hand dust cap A (Y-37G 98080)	Right hand dust cap C for INTER-8
		w / 8R20TYPE R.H. DUST CAP A SG-C6010-8R SG-C6010-8V SG-C6000-8R SG-C6000-8V SG-C6000-8C	Right hand dust cap A (Y-34R 98110)	Right hand dust cap B for INTER-8
	7	SG-C3000-7R	Right hand dust cap B for INTER-7 roller brake spec	Right hand dust cap C for INTER-7
		SG-C3000-7C	Right hand dust cap B for INTER-7 coaster brake spec	
	4 5(JPN)	SG-5R35 SG-5R30	Right hand dust cap A	Right hand dust cap D
	3 (Export)	SG-3D55	Right hand dust cap A for INTER-3 Disc brake spec	Right hand dust cap B for INTER-3
		SG-3R40 SG-3C41	Right hand dust cap A for INTER-3 roller / coaster brake	
	3 (JPN)	SG-3R42 SG-3R40 SG-3S40		
	3 (JPN, Assist)	SG-3R75	Right hand dust cap B for INTER-7 roller brake spec	Right hand dust cap C for INTER-7

Series	Speeds	Model No.	SM-GEAR										
			Inward assembly										
			14	15	16	17	18	19	20	21	22	23	
ALFINE	11	SG-S705	-	-	-	-	-	-	X	X	X	X	
	11	SG-S700	-	-	-	-	-	-	X	X	X	X	
	8	SG-S505	-	-	-	-	X	X	X	X	X	X	
	8	SG-S7000-8	-	-	-	-	X	X	X	X	X	X	
Nexus	8	SG-C6060-8R SG-C6060-8D SG-C6060-8C	-	-	-	-	-	-	X	X	X	X	
		11 Standard Spec SG-C6010-8R SG-C6010-8V SG-C6000-8R SG-C6000-8V <a href="#">SG-C6000-8D</a> SG-C6000-8C <a href="#">SG-C6000-8CD</a>	-	-	-	-	-	-	X	X	X	X	
		w / 8R20TYPE R.H. DUST CAP A SG-C6010-8R SG-C6010-8V SG-C6000-8R SG-C6000-8V SG-C6000-8C	-	-	X	-	X	X	X	X	X	X	
	7	SG-C3000-7R	-	-	-	-	X	X	X	X	X	X	
		SG-C3000-7C	-	-	-	-	X	X	X	X	X	X	
	4 5(JPN)	SG-5R35 SG-5R30	-	-	X	-	X	X	X	X	X	X	
	3 (Export)	SG-3D55	-	-	-	-	X	X	X	X	X	X	
		SG-3R40 SG-3C41	-	-	-	-	X	X	X	X	X	X	
	3 (JPN)	SG-3R42 SG-3R40 SG-3S40	-	-	-	-	X	X	X	X	X	X	
	3 (JPN, Assist)	SG-3R75	-	-	-	-	-	X	X	X	X	X	

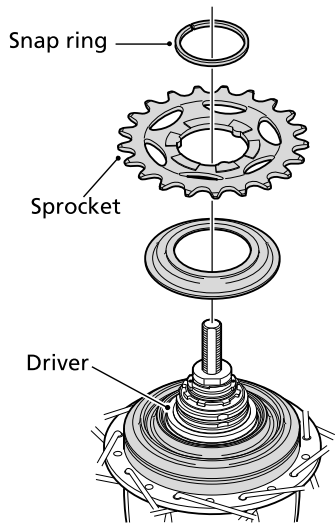
Series	Speeds	Model No.	SM-GEAR										
			Outward assembly										
			14	15	16	17	18	19	20	21	22	23	
ALFINE	11	SG-S705	-	-	-	-	-	-	-	-	-	-	-
	11	SG-S700	-	-	-	-	X	X	X	X	X	X	X
	8	SG-S505	-	-	-	-	-	-	-	-	-	-	-
	8	SG-S7000-8	-	-	X	-	X	X	X	X	X	X	X
Nexus	8	SG-C6060-8R SG-C6060-8D SG-C6060-8C	-	-	-	-	-	-	-	-	-	-	-
		 Standard Spec SG-C6010-8R SG-C6010-8V SG-C6000-8R SG-C6000-8V <a href="#">SG-C6000-8D</a> SG-C6000-8C <a href="#">SG-C6000-8CD</a>	-	-	X	-	X	X	X	X	X	X	X
		w / 8R20TYPE R.H. DUST CAP A SG-C6010-8R SG-C6010-8V SG-C6000-8R SG-C6000-8V SG-C6000-8C	-	-	X	-	X	X	X	X	X	X	X
	 7	SG-C3000-7R	-	-	X	-	X	X	X	X	X	X	X
		SG-C3000-7C	-	-	X	-	X	X	X	X	X	X	X
	 4 5(JPN)	SG-5R35 SG-5R30	-	-	X	-	X	X	X	X	X	X	X
		SG-3D55	-	X	X	-	X	X	X	X	X	X	X
	3 (Export)	SG-3R40 SG-3C41	X	X	X	-	X	X	X	X	X	X	X
		SG-3R42 SG-3R40 SG-3S40	X	X	X	X	X	X	X	X	X	X	X
	3 (JPN)	SG-3R42 SG-3R40 SG-3S40	X	X	X	X	X	X	X	X	X	X	X
3 (JPN, Assist)	SG-3R75	-	-	X	X	X	X	X	X	X	X	X	

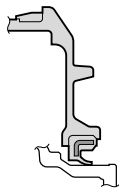

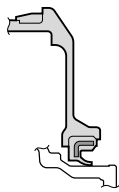
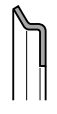
Series	Speeds	Model No.	CS-S500				Sealing performance
			Inward		Outward		
			18	20	18	20	
ALFINE	11	SG-S705	-	X*	-	-	2.9
	11	SG-S700	X	X	-	-	2.9
	8	SG-S505	X*	X*	-	-	1
	8	SG-S7000-8	X	X	-	-	1
Nexus	8	SG-C6060-8R SG-C6060-8D SG-C6060-8C	-	-	-	-	1
		 Standard Spec SG-C6010-8R SG-C6010-8V SG-C6000-8R SG-C6000-8V <a href="#">SG-C6000-8D</a> SG-C6000-8C <a href="#">SG-C6000-8CD</a>	-	-	-	-	2.9
		w / 8R20TYPE R.H. DUST CAP A SG-C6010-8R SG-C6010-8V SG-C6000-8R SG-C6000-8V SG-C6000-8C	-	-	-	-	1
	 7	SG-C3000-7R	-	-	-	-	2.9
		SG-C3000-7C	-	-	-	-	2.9
	 4 5(JPN)	SG-5R35 SG-5R30	-	-	-	-	2.9
		SG-3D55	X	X	-	-	1
	3 (Export)	SG-3R40 SG-3C41	-	-	-	-	1
		SG-3R42 SG-3R40 SG-3S40	-	-	-	-	1
	3 (JPN)	SG-3R42 SG-3R40 SG-3S40	-	-	-	-	1
3 (JPN, Assist)	SG-3R75	-	-	-	-	2.9	

X: Yes

\* Only spec without guard can be used

## In case of INTER-8, 2 variations available C-292



<b>A specifications:</b> Right hand dust cap A 	<b>A specifications:</b> Right hand dust cap C 
<b>B specifications:</b> Right hand dust cap A 	<b>B specifications:</b> Right hand dust cap B 

## Internal geared hub performance C-479

6

Series		Alfine	Alfine	Alfine	Nexus	Nexus	Nexus	Nexus
Model No.		SG-S700 SG-S705	SG-S7000-8	SG-S505	SG-C6010-8R SG-C6010-8V SG-C6060-8R SG-C6060-8V SG-C6060-8C SG-C6060-8D	SG-C6000-8R SG-C6000-8V SG-C6000-8C <a href="#">SG-C6000-8D</a>	SG-C3000-7R SG-C3000-7C	SG-3R75-A
Maximum torque for shifting (Nm) (*see NOTE 1 and 2)	Up Shift (Low ⇒ Top)	5Nm	5Nm	5Nm	5Nm	5Nm	5Nm	40Nm
	Down Shift (Top ⇒ Low)	10Nm	12Nm	9Nm	9Nm	9Nm	8Nm	7Nm
Static strength		Fulfil EN 14764 4.13.6 Requirements						
Maximum continuous input allowed (to guarantee the durability of the hub)	Maximum torque (Nm) (*see NOTE 1 and 2)	40	40	40	40	35	35	40
	With the above mentioned Maximum torque, below Maximum input at the crank is calculated (with mentioned gear ratio)							
	Gear ratio (Front sprocket teeth/ Rear sprocket teeth)	1.9	2.1	2.1	2.1	2.1	2.1	2.6
	Maximum continuous input at crank (Watt) (*see NOTE 2)	500	500	500	500	440	440	500
Maximum input allowed at 50Nm to the crank arm by rider plus motor torque	Maximum torque (Nm) (*see NOTE 1, 2 and 3)	60	60	60	60	60	60	60

\* SG-3R40, SG-3C41 are not recommended for E-bike system with mid-drive motor

### NOTE 1

Input torque at the sprocket assembled on the hub.

### NOTE 2

When using E-bike systems with mid-drive motor please mind to calculate with total power in the drive train (motor + rider).

### NOTE 3

How to calculate :

Maximum input = (Input torque by rider : 50 + Maximum torque of mid-drive motor) / Internal gearing ratio of mid-drive motor / Gear ratio of bicycle

In case of Shimano Steps, with 2.1 (gear ratio of bicycle) : Maximum torque = (50+50) /1 /2.1= 47.6 < 60

To make maximum input below 60Nm, please adjust Maximum torque of mid-drive motor and gear ratio of bicycle.

### GENERAL COMMENTS:

Shifting torque

- These are reference values.
- If rotation torque at the rear sprocket is higher than maximum torque for shifting which are shown in table, shifting may not be possible intentionally to prevent any damage of the hub gear.

Shimano Internal Hub Gears and E-bikes with mid-drive motor systems

- The Maximum torque (Nm) that will finally input on the rear sprocket depends on the support from the mid-drive motor, the support from the driver and the chosen gear ratio.
- Because of all different combinations possible, Shimano can not say in general if certain mid-drive motors can be used or not in combination with Shimano Internal Hub Gears.

Warranty

- Shimano warrant Internal Gear Hubs for 2 years when the real values are lower than the values mentioned in above chart and the hubs are maintained correctly.



# Wheels and cassette sprocket compatibility

WH CS compatibility chart including the Model No.

		Speed	Cassette Sprocket				
			CS-9000 CS-6800 CS-5800	<del>CS-6700</del> <del>CS-5700</del>	<del>CS-HG81-10</del> <del>CS-HG62-10</del> <del>CS-HG500-10</del>	CS-HG50-9	CS-HG50-8
			11-speed	10-speed		9-speed	8-speed
WH / FH	WH-9000 Series	11	X	X (w / 1.85 mm spacer and 1 mm spacer)	X (w / 1.85 mm spacer)	-	-
	WH-RS81 Series						
	WH-RX830						
	WH-RS610						
	<a href="#">WH-RS330</a>						
	WH-RS21						
	WH-RS11						
	WH-RX31						
	WH-RS010						
	<a href="#">WH-RX010</a>						
	FH-9000						
	FH-CX75						
	WH-6800						
	FH-6800						
	FH-5800						
	<a href="#">FH-RS400</a>						
	WH-R501 Series	10	-	X (w / 1 mm spacer)	X	X	X
WH-RX05	9	-	X (w / 1 mm spacer)	X	X	X	
FH-3500							
FH-2400							

## Spoke protector

C-491

Select the spoke protector after checking the chart below.

It is decided by hole number of hub and number of the gear teeth, other than multiple freewheel.

Righthand flange diameter	Speed	Model No.	Cassette sprocket low gear No.					Spoke hole No.		
			28T	30T	32T	34T	36T	28H	32H	36H
53.8 mm	10	CS-M980	-	-	-	X	X	-	CP-FH56	CP-FH53
		CS-M771-10	-	-	-	X	X	-	CP-FH56	CP-FH53
		CS-HG81-10	-	-	-	X	X	-	CP-FH56	CP-FH53
		CS-HG62-10	-	-	X	X	-	-	CP-FH56	CP-FH53
		CS-HG50-10	-	-	-	-	X	-	CP-FH56	CP-FH53
	9	CS-HG80-9	-	-	X	X	-	CP-WH12	CP-FH56	CP-FH53
		CS-HG80-9	X	-	-	-	-	-	CP-FH35	CP-FH50
		CS-HG400-9 / CS-HG300-9	-	-	-	-	X	-	CP-FH56	CP-FH53
		CS-HG400-9 / CS-HG300-9	-	-	X	X	-	CP-WH12	CP-FH56	CP-FH53
		CS-HG400-9 / CS-HG300-9	X	-	-	-	-	-	CP-FH35	CP-FH50
		CS-HG200-9	-	-	X	X	-	CP-WH12	CP-FH56	CP-FH53
		CS-ROAD	X	-	-	-	-	CP-FH08	CP-FH35	CP-FH31
	8	CS-HG60-8I	-	-	-	X	-	CP-WH12	CP-FH56	CP-FH53
		CS-HG51-8	X	X	-	-	-	CP-FH40	CP-FH35	CP-FH50
		CS-HG51-8	-	-	X	-	-	CP-WH12	CP-FH56	CP-FH53
		CS-HG41-8	-	X	-	-	-	CP-FH40	CP-FH35	CP-FH50
		CS-HG41-8	-	-	X	X	-	CP-WH12	CP-FH56	CP-FH53
		CS-HG31-8	-	X	-	-	-	CP-FH40	CP-FH35	CP-FH50
		CS-HG31-8	-	-	X	X	-	CP-WH12	CP-FH56	CP-FH53
		CS-HG200-8	-	-	X	-	-	CP-WH12	CP-FH56	CP-FH53
	7	CS-HG41-7	X	-	-	-	-	CP-FH40	CP-FH35	CP-FH50
CS-HG20-7		-	-	X	-	-	-	CP-FH56	CP-FH53	
CS-HG20-7		X	-	-	-	-	-	CP-FH35	CP-FH50	
70.6 mm	10	CS-M980	-	-	-	X	X	-	CP-FH76	CP-FH76
		CS-M771-10	-	-	-	X	X	-	CP-FH76	CP-FH76
		CS-HG81-10	-	-	-	X	X	-	CP-FH76	CP-FH76
	9	CS-HG80-9	-	-	X	X	-	-	CP-FH76	CP-FH76
		CS-HG400-9 / CS-HG300-9	-	-	-	-	X	-	CP-FH76	CP-FH76
		CS-HG400-9 / CS-HG300-9	-	-	X	X	-	-	CP-FH76	CP-FH76
		CS-HG400-9 / CS-HG300-9	X	-	-	-	-	-	CP-FH76	CP-FH76
		CS-HG200-9	-	-	X	X	-	-	CP-FH76	CP-FH76
		CS-HG80-9	X	-	-	-	-	-	-	-
		CS-ROAD	X	-	-	-	-	-	-	-
	8	CS-HG60-8I	-	-	-	X	-	-	CP-FH76	CP-FH76
		CS-HG51-8	X	X	-	-	-	-	-	-
		CS-HG51-8	-	-	X	-	-	-	CP-FH76	CP-FH76
		CS-HG41-8	-	X	-	-	-	-	-	-
		CS-HG41-8	-	-	X	X	-	-	CP-FH76	CP-FH76
		CS-HG31-8	-	X	-	-	-	-	-	-
		CS-HG31-8	-	-	X	X	-	-	CP-FH76	CP-FH76
		CS-HG200-8	-	-	X	-	-	-	CP-FH76	CP-FH76
	7	CS-HG41-7	X	-	-	-	-	-	-	-
		CS-HG20-7	-	-	X	-	-	-	CP-FH76	CP-FH76
		CS-HG20-7	X	-	-	-	-	-	-	-

Model No.	Cassette soroket total gear No.			Cassette sproket low gear No.					4 Edit
	9-speed	10-speed	11-speed***	28T	32T	34T	36T	40T	
WH-M9020 <a href="#">WH-M8000</a> <a href="#">WH-M8020</a>	-	-	X	-					CP-WH17 6 CP-WH17
WH-M985 WH-M988 WH-M785-29 WH-M785-275	X	X	-	CP-WH14B					-
WH-MT68 WH-MT66 WH-MT55-29	X	X	-	CP-WH14A					-
WH-M980-29 WH-MT66-29	X	X	-	CP-WH16					-
WH-MT35 WH-MT35-275 WH-MT35-29 WH-MT15-A WH-MT15-A-275 WH-MT15-A-29	-	X	-	-	CP-WH12				-
	X	-	-	CP-FH08					-

\*\*\* 11s : CS-M9000 / [CS-M9001](#) / [CS-M8000](#)

ROAD

Model No.	Cassette Sprocket total gear No.			Cassette Sprocket low gear No.						34T
	9-speed	10-speed	11-speed**	23T	25T	27T	28T	30T	32T*	
WH-9000-C24-CL WH-9000-C24-TL WH-RS81-C24-CL WH-RS81-C24-TL WH-6800 WH-RS610 WH-RS21-CL WH-RS11	-	-	X	CP-WH23				-	CP-W120	-
	-	X	-	CP-W020						-
WH-9000-C24-TU WH-9000-C35-TU WH-9000-C50-TU WH-9000-C75-TU WH-RS81-C50-CL WH-RS81-C35-CL WH-RS81-C35-TL <a href="#">WH-RS330-CL</a>	-	-	X	CP-W184				-	CP-W124	-
	-	X	-	CP-W024						-
WH-RX830	-	X	X	-	CP-W1220					CP-WH14 CP-WH14A
WH-RS010-CL	-	X	X	-	CP-WH24					CP-FH53
WH-R501-30 WH-R501-A WH-R501	X	X	-	CP-FH06	CP-FH31	CP-FH46	CP-WH24	-		
WH-RX31	-	X	X	-	CP-W122					CP-W122
<a href="#">WH-RX010-CL</a>	-	-	X	CP-FH08			-	CP-WH12	-	
	-	X	-	CP-FH40 CP-FH41	CP-FH40 CP-FH41	CP-WH12	CP-WH12	CP-WH12		
WH-RX05	X	X	-	CP-FH08	CP-FH40 CP-FH41	CP-WH12	-			

\* For compact crank set

\*\* 11-speed : CS-9000 / CS-6800 / CS-5800

Spoke protector for Capreo

Choose an appropriate spoke protector in the chart below.

Model No.	Spoke protector	
FH-F700	24H	CP-FH35 / CP-FH31
	32H	CP-FH35
	36H	CP-FH31

Spoke protector for Road

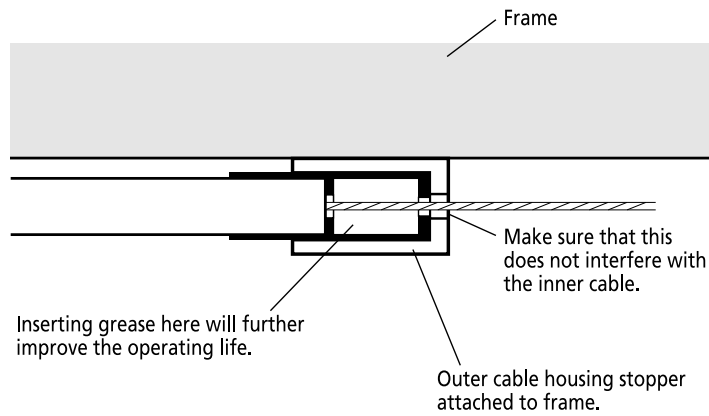
Speed	Model No.	Cassette sprocket low gear No.								Spoke holes No.			
		21T	23T	24T	25T	26T	27T	28T	30T	24H	28H	32H	36H
8, 9, 10	Road	X	X	-	X	-	-	-	-	CP-FH06	CP-FH08	CP-FH05	CP-FH06
		-	-	-	-	X	-	-	-	CP-FH31	CP-FH08	CP-FH35	CP-FH31
		-	-	-	-	-	X	X	-	CP-FH31	CP-FH08	CP-FH35	CP-FH31
7	CS-HG20-7	-	-	-	-	-	-	X	-	-	-	CP-FH45	CP-FH46
	MF-TZ21	-	-	-	-	-	-	X	-	-	-	CP-FH50	CP-FH50
		-	-	-	-	-	-	X	-	-	-	CP-HG22 / MF-TZ21-CP	

Spoke protector can not use for Road 11-speed freehub.

## Brake cable system

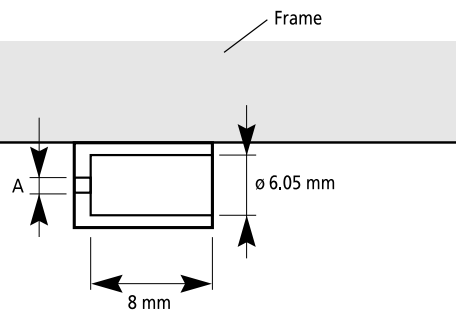
C-304

To improve efficiency and prolong the life of the brake cables, use a cable housing of the construction shown below. When designing the outer cable housing stop, make sure that the diameter of the hole for the inner cable (A) is of the correct dimension so that it does not interfere with the inner cable.



## Recommended dimensions for outer cable housing stop at frame

C-305



Model No.	A (mm)
BC-9000 / BC-R680 (Outer cap with tongue type)	$\phi 2.5 \leq A \leq \phi 2.7$
Others (Outer cap)	$\phi 2.1 \leq A \leq \phi 2.6$

## Polymer-coated brake cable (BC-9000 / BC-R680) compatible chart

C-306

Series	Brake with New cable	
	Model No.	Compatible
DURA-ACE	BR-9000	X
	BR-9010	
ULTEGRA	BR-6800	X
	BR-6810	
SHIMANO	BR-CX77	X
105	BR-5800	X
	BR-5810	
105	BR-5700	-
Tiagra	<a href="#">BR-4700</a>	X
Others		-

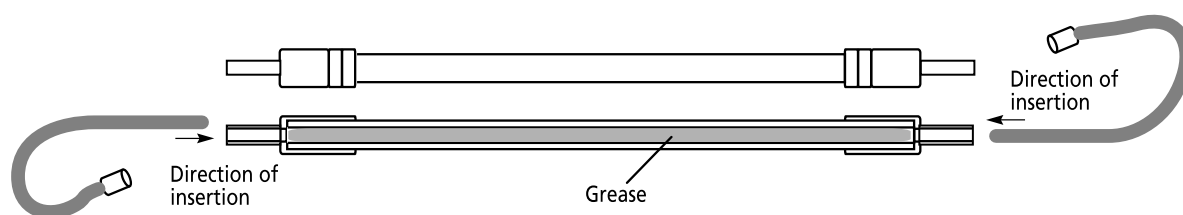
X: Yes

## Shifting cable system

### Cable system assembly (inner cable direction) C-308

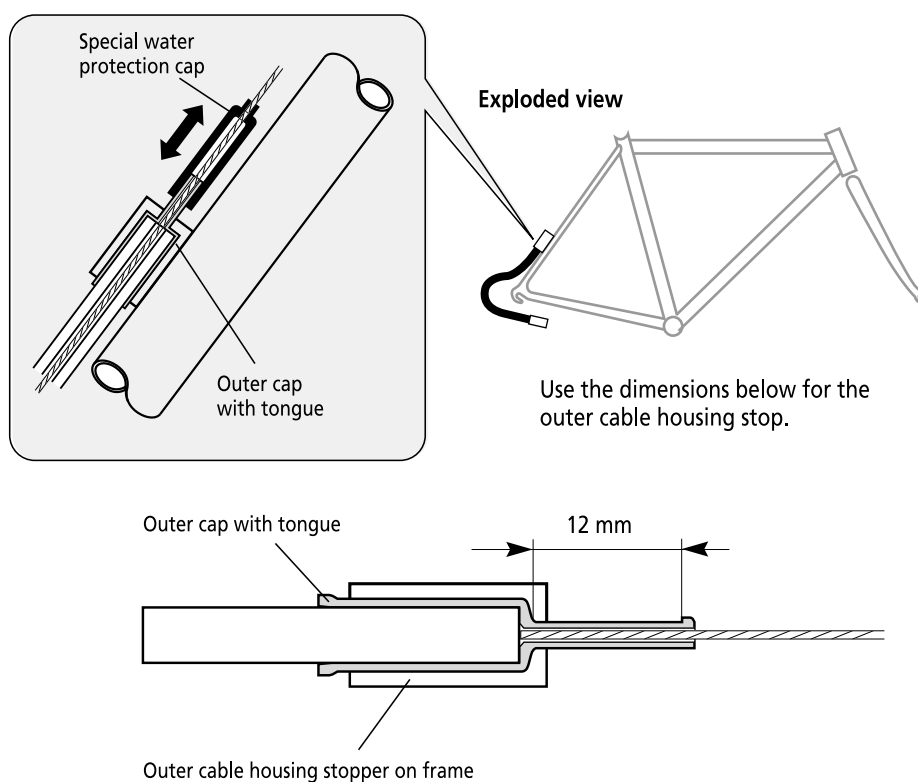
#### SIS-SP41

SP41, grease is injected into the outer cable all the way as shown below. There is no need to take care of the direction of insertion of the inner cable.



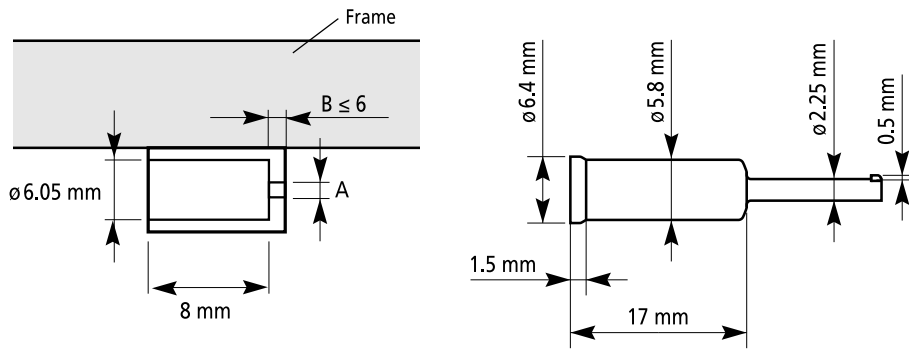
### Cable system assembly for top route C-309

In the case of top routing for the rear cable, there is a chance that rainwater or mud may get inside the cable. To prevent this, install outer cap with tongue and a special water protection cap as shown below. This special water protection cap is in the line-up for XTR, DEORE-XT, LX, DEORE components.



## Outer cable housing stop dimensions

Set the A dimension for the outer cable housing stop for the shifting cable to between 2.25 mm and 2.6 mm. The hole "A" must be concentric with the  $\varnothing 6.05$  mm hole.

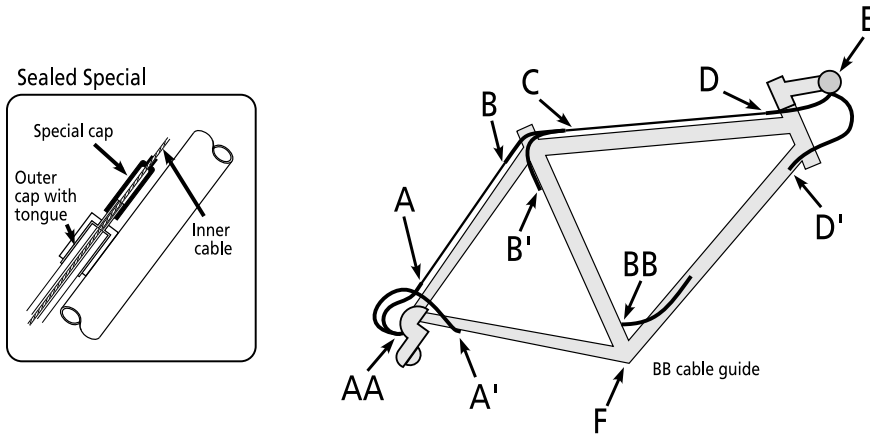


### NOTE

Diameter "A" can be enlarged if there is insufficient clearance.

The cable outer cap with tongue may not be gripped securely if "B" is too thick.

# Shifting cable combination C-310



Category	Series	Outer casing	Inner cable Material	Cable cap											BB cable guide
				AA	A	A'	B	B'	BB	C	D	D'	E	F	
MTB	XTR (M9000 series)	OT-SP41	Polymer-coated inner cable	Sealed*	Sealed Special			Sealed*	Sealed Special			Sealed	SM-SP17 (Durable)		
	SAINT		-			-	-								
	DEORE XT (M8000 series)		Sealed*			Sealed*	-								
	DEORE XT		Sealed Special			Sealed	Sealed								
	SLX		-			-	-								
	DEORE LX		-			-	-								
	ZEE		-			-	-								
	DEORE	OT-SP40	Stainless	Normal	Normal	Normal	-	Normal	Normal	Normal	Normal	SM-SP18			
	Alivio (M4000 / T4000 series)		Steel	Normal	Normal	Normal	-	Normal	Normal	Normal	SM-SP18				
	Alivio			Normal	Normal	Normal	-	Normal	Normal	Normal					
	Acera			Normal	Normal	Normal	-	Normal	Normal	Normal					
	Altus			Normal	Normal	Normal	-	Normal	Normal	Normal					
others	OT-SIS40	Normal	Normal	Normal	-	Normal	Normal	Normal	SM-SP18						
Tourney TX	OT-SIS40	Normal	Normal	Normal	-	Normal	Normal	Normal	SM-SP18						
Tourney	OT-SIS40	Normal	Normal	Normal	-	Normal	Normal	Normal	SM-SP18						

Category	Series	Outer casing	Inner cable Material	Cable cap											BB cable guide
				AA	A	A'	B	B'	BB	C	D	D'	E	F	
Road	DURA-ACE (9000 series)	OT-SP41	Polymer-coated inner cable	AL Sealed	Outer cap with long tongue *1			-	Outer cap with long tongue *1			Outer cap with short tongue *2		SM-SP17 (Durable)	
	ULTEGRA (6800 series, ST-RS685)			Sealed	Outer cap with long tongue *1			-	Outer cap with long tongue *1			Outer cap with short tongue *2			
	105 (5800 series)		Sealed	Sealed**	Normal	-	Normal	Normal	Normal		Normal				
	105 (5700 series)					Normal		Normal		Normal					
	TIAGRA (4700 series)					Outer cap with short tongue *2		Normal		Normal					
	TIAGRA		Stainless	Normal	Normal	Normal		Normal		Normal					
	SORA					Normal		Normal		Normal					
	Claris	Normal				Normal		Normal							
Tourney (A070 / A050)	OT-SIS40	Steel	Normal	Normal	Normal	-	Normal	Normal	Normal	Normal	SM-SP18				
OTHERS	Capreo	OT-SP41	Stainless	Sealed*	Sealed	Sealed	-	Sealed	Sealed	Sealed	SM-SP17 (Durable)				

Recommend to use outer cap with tongue (\*1, \*2) for Polymer-coated inner cable.

\* If the front/rear derailleur moves to a large degree, such as in bicycles with rear suspension, it is recommended that you replace the cap with the accessory aluminum cap. The end of the outer casing which has the aluminum cap should be at the front / rear derailleur side.

\*\* According to frame design, sometimes need to choose suitable cap. Sealed special type is recommended in muddy conditions.

\*1 Outer cap with long tongue

\*2 Outer cap with short tongue



Dura-Ace 9000 series / ULTEGRA 6800 series / 105 5800 series  
New outer cap with long or short tongue is required for assembly.

## When using full outer casing C-312

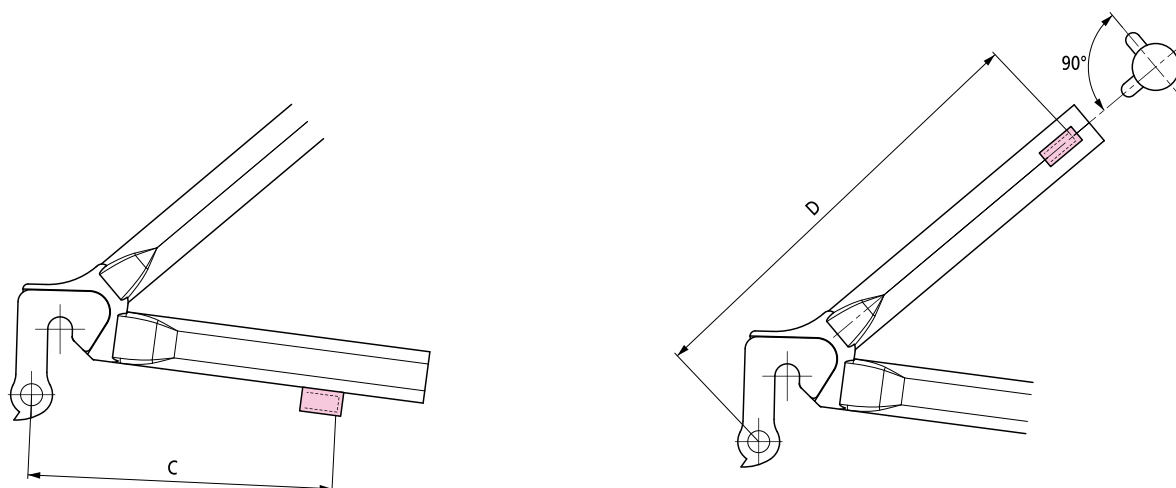
When using a full outer casing as the outer casing, the following factors may affect the gear shifting performance, so make sure that you check the proper gear shifting performance can be obtained before normal use.

In addition, check to be sure that the outer casing does not touch moving parts such as the tires and crank arms during riding.


- Cable routing method.
  - \*Curvature (Recommended minimum curvature: R40mm)
  - \*Enough slack for suspension and handle bar operation
  
- Method of securing the cable to the frame.
- 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.

## Outer cable length

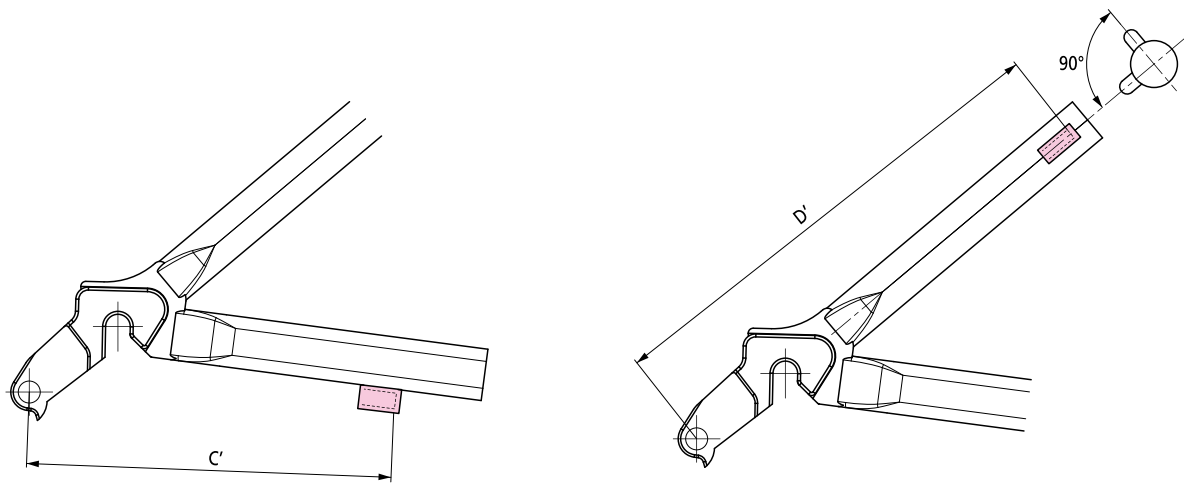
### Rear dropouts (with derailleur hanger) C-314



	Model No.	Dimension C				
		100 mm	110 mm	120 mm	130 mm	140 mm
Outer Cable Length (mm)	RD-M9000	200	210	220	-	-
	RD-M986					
	RD-M981					
	RD-M820 (FR mode, DH mode)					
	<a href="#">RD-M8000</a>					
	RD-M786					
	RD-M781					
	RD-M675					
	RD-M670					
	RD-M640 (FR spec, DH spec)					
	RD-M610					
	RD-M615					
	RD-F800					
	<sup>5</sup> RD-T780 RD-T670 RD-T670-A RD-T610	290	310	330	-	-
	RD-M772 / M662 RD-M592	180	190	200	-	-
	RD-M4000	180	190	200	-	-
	RD-T4000	280	300	320	-	-
	<a href="#">RD-M3000</a>	180	190	200	-	-
	<a href="#">RD-T3000</a>	280	300	320	-	-
	RD-TX800	280	300	320	-	-
Other models (w / o Roller Guide RD)	280	300	320	-	-	
RD-FT35 RD-FT55	250	270	290	-	-	
RD-TY21-A	280	300	320	-	-	

	Model No.	Dimension D		
		150 mm	165 mm	180 mm
Outer Cable Length (mm)	RD-M9000	210	220	240
	RD-M986			
	RD-M981			
	RD-M820 (FR mode)			
	<a href="#">RD-M8000</a>			
	RD-M786			
	RD-M781			
	RD-M675			
	RD-M670			
	RD-M640 (FR spec)			
	RD-M610			
	RD-M615			
	RD-F800			
	 RD-T780 RD-T670 RD-T670-A RD-T610	290	310	330
	RD-M820 (DH mode)	220	230	250
	RD-M640 (DH spec)			
	RD-M772 / M662	200	210	230
	RD-M592	200	210	230
	RD-M4000			
	RD-T4000	280	300	320
	<a href="#">RD-M3000</a>	200	210	230
	<a href="#">RD-T3000</a>	280	300	320
	RD-TX800	280	310	340
	Other models (w / o Roller Guide RD)	280	300	320
	RD-TX55	190	200	210
	RD-TX35	280	310	340
	RD-FT35 RD-FT55	250	270	310
	RD-TY21-A	280	300	320

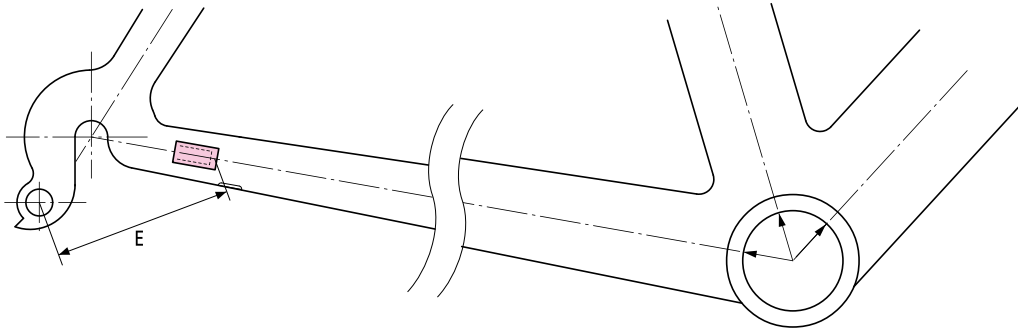
# Rear dropouts (Direct mount) C-315



	Model No.	Dimension C'				
		125 mm	135 mm	145 mm	155 mm	165 mm
Outer Cable Length (mm)	RD-M9000	200	210	220	-	-
	RD-M986					
	RD-M981					
	RD-M820 (FR mode, DH mode)					
	<a href="#">RD-M8000</a>					
	RD-M786					
	RD-M781					
	RD-M675					
	RD-M670					
	RD-M640 (FR spec, DH spec)					
	RD-M615					
	RD-M610					
	<a href="#">RD-M4000</a>					
<a href="#">RD-M3000</a>						

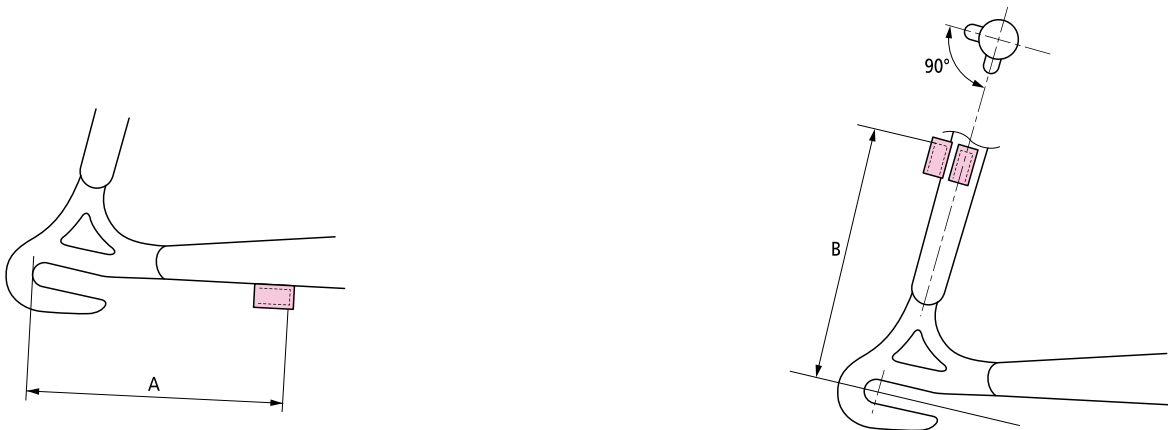
	Model No.	Dimension D'							
		162 mm	172 mm	177 mm	182 mm	192 mm			
Outer Cable Length (mm)	RD-M9000	210	-	220	-	240			
	RD-M986								
	RD-M981								
	RD-M820 (FR mode)								
	<a href="#">RD-M8000</a>								
	RD-M786								
	RD-M781								
	RD-M675								
	RD-M670								
	RD-M640 (FR spec)								
	RD-M615								
	RD-M610								
	RD-M820 (DH mode)						220	230	250
	RD-M640 (DH spec)						210	220	240
	RD-M4000						210	220	240
<a href="#">RD-M3000</a>	210	220	240						

## Built-in wire routing (For Road 11-speed) C-316



	Model No.	Dimension E						
		40mm	50mm	60mm	80mm	100mm	125mm	150mm
Outer Cable Length (mm)	built-in wire routing for Road 11-speed	220	240	260	300	340	390	440

## Rear dropouts (without derailleur hanger) C-317



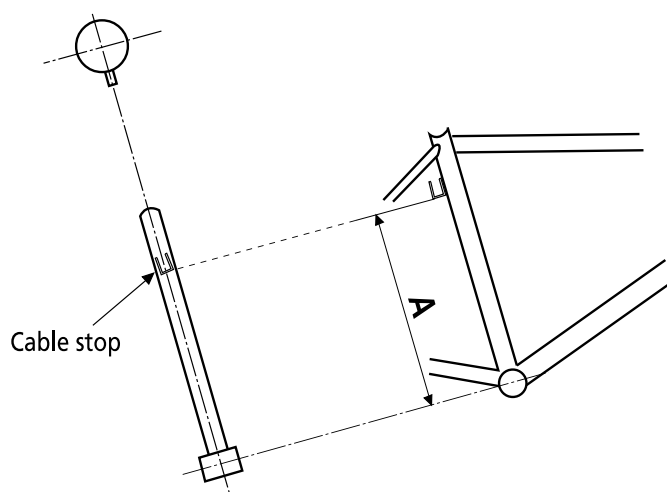
	Model No.	Dimension A			Dimension B		
		90 mm	100 mm	110 mm	115 mm	130 mm	145 mm
Outer Cable Length (mm)	Standard	280	300	320	280	300	320
	RD-TX35	280	300	320	280	300	320
	RD-TX55	180	190	200	175	190	205
	RD-TY21-A	280	300	320	280	300	320
	RD-TZ50	280	300	320	280	300	320
	RD-FT35 RD-FT55	140	160	180	140	160	180

## Cable stop position for top routed cable

The following dimensions are important for maintaining optimum performance.

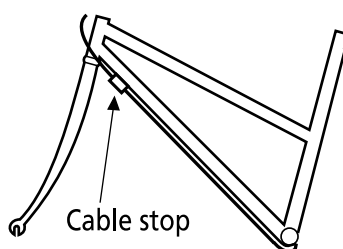
A=300-350mm

A=280-440mm (FD-CX70-T)



## Down cable routing

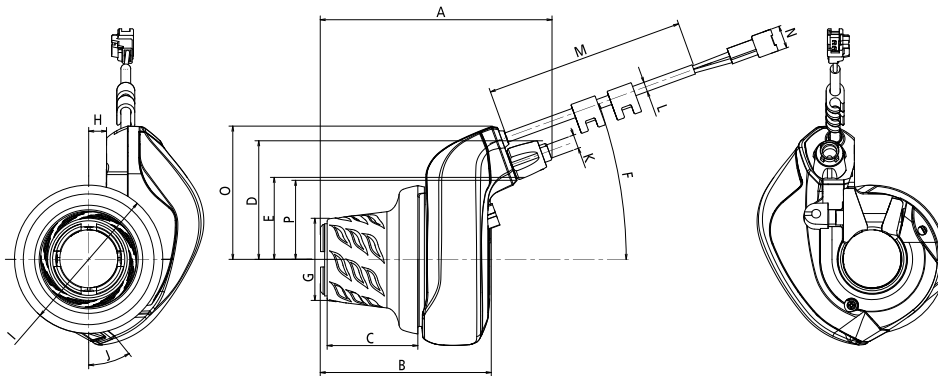
Shifting performance is dependant on cable routing and the type of cable guide used. Please check the cable action and efficiency before finalizing specifications.



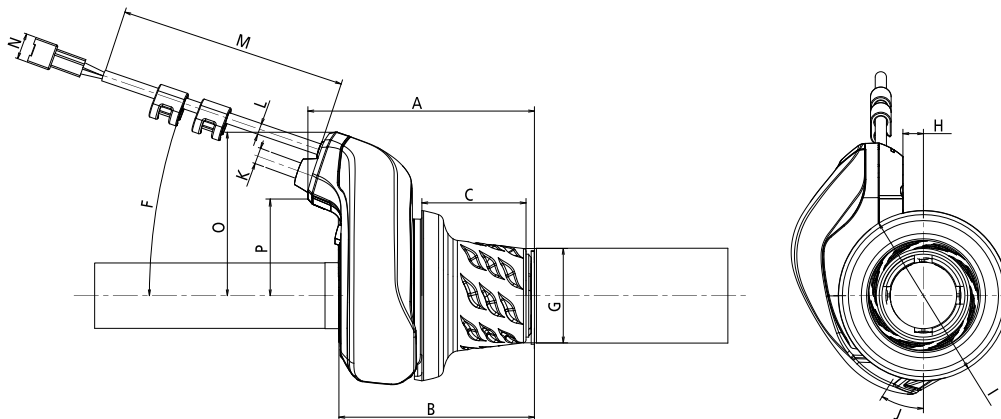
## Shift lever with LED position light for Japanese Market

C-321

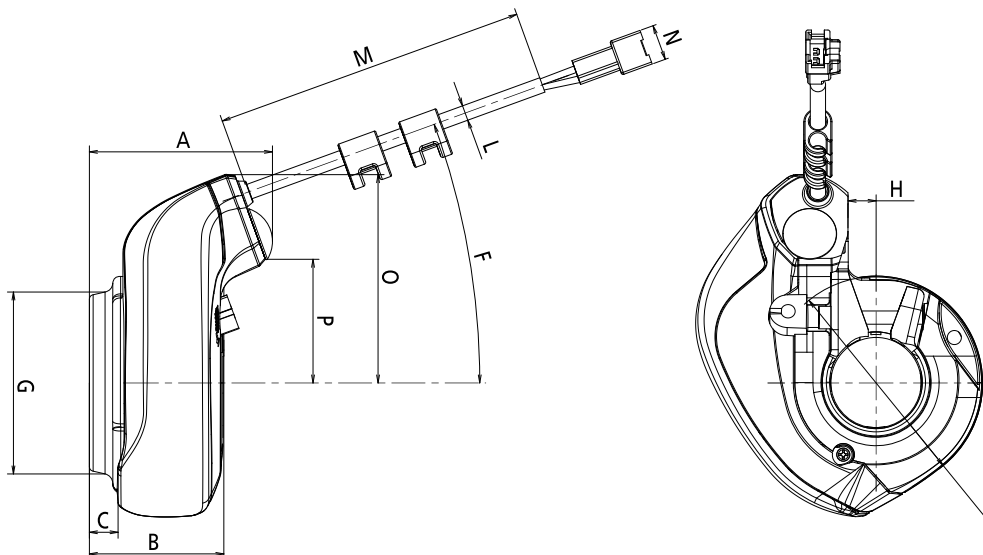
### SL-RS34-LN



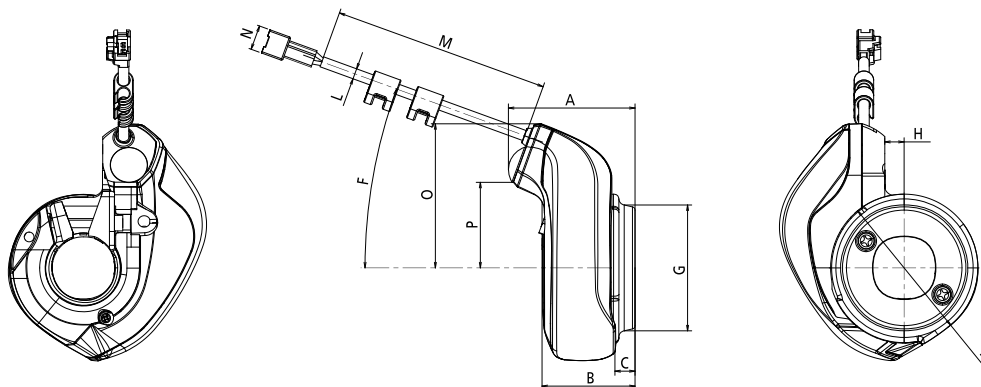
### SL-RS34-6R / SL-RS34-7R



### SM-RS34-L



# SM-RS34-R



Model No.	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F	G (mm)	H (mm)
SL-RS34-6R SL-RS34-7R	81.5	66.0	37.1	46.8	32	20°	32.0	6.4
SL-RS34-LN	81.5	66.0	37.1	46.8	32	20°	32.0	6.4
SM-RS34-L SM-RS34-R	45.6	33.5	8.2	46.8	32	20°	45.3	6.4

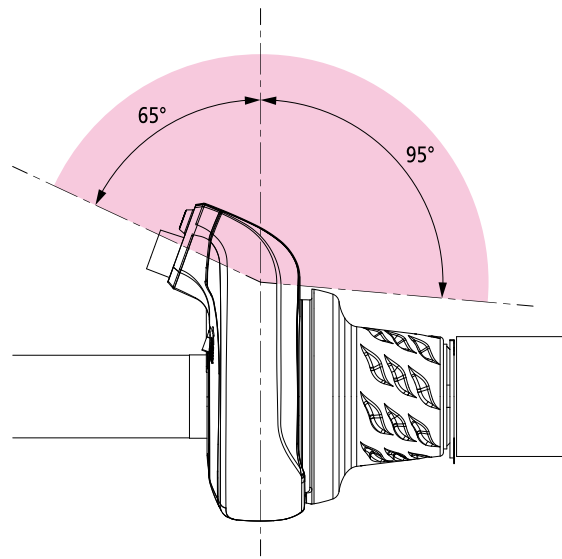
Model No.	I (mm)	J	K (mm)	L (mm)	M (mm)	N (mm)	O (mm)	P (mm)
SL-RS34-6R SL-RS34-7R	ø58.0	31°	4	4	200	9.5	51.9	30.8
SL-RS34-LN	ø58.0	31°	4	4	200	9.5	51.9	30.8
SM-RS34-L SM-RS34-R	ø53.1	-	-	4	200	9.5	51.9	30.8

## Irradiation angle C-322

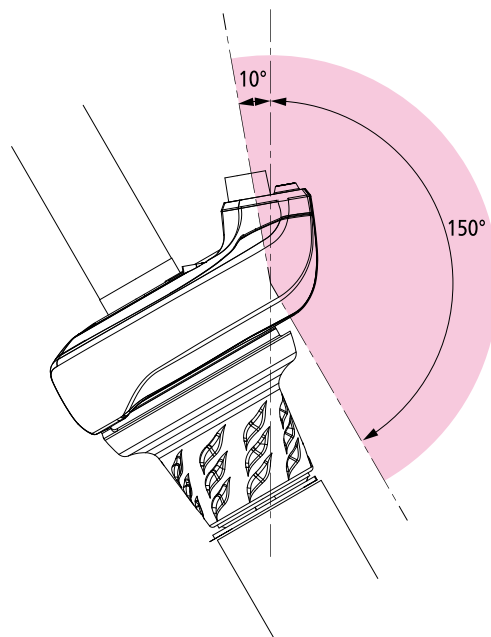
### SL-RS34 / SM-RS34

This product enhances the conspicuity to the front. Its 160° illuminating angle also provides compatibility with both straight handles and comfort bike handles.

#### Straight handle type



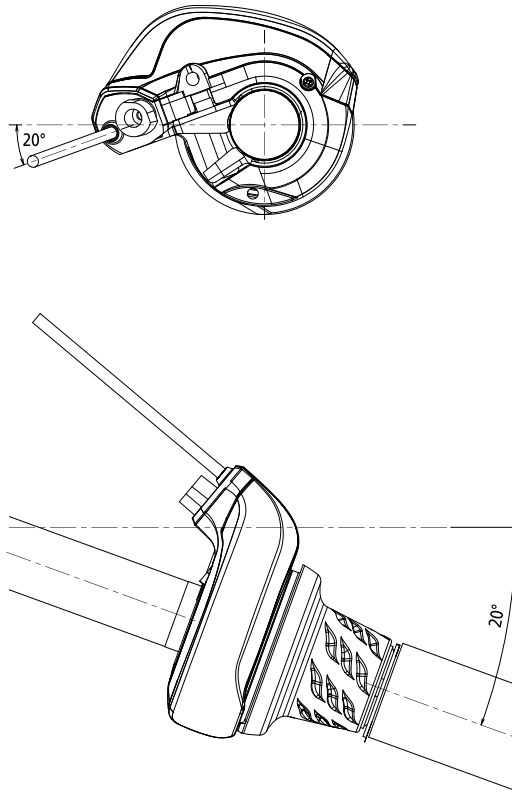
#### Comfort bike handle type (60°)



## Installation for handlebar C-323

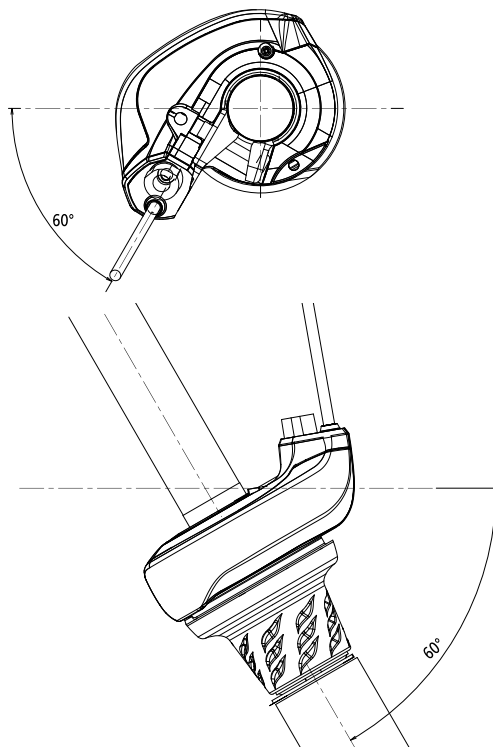
### Straight handle type

Use a product with a handle angle of 60 degrees or lower with respect to the direction of travel so that the light can illuminate ahead. Also use handle bars that have a minimum length of 158 mm in the straight section.

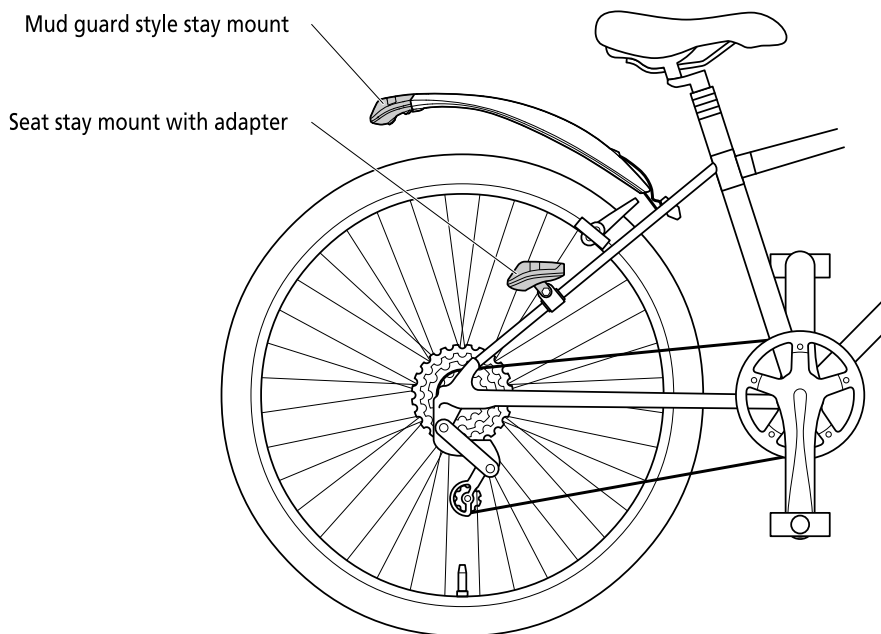


### Comfort bike handle type

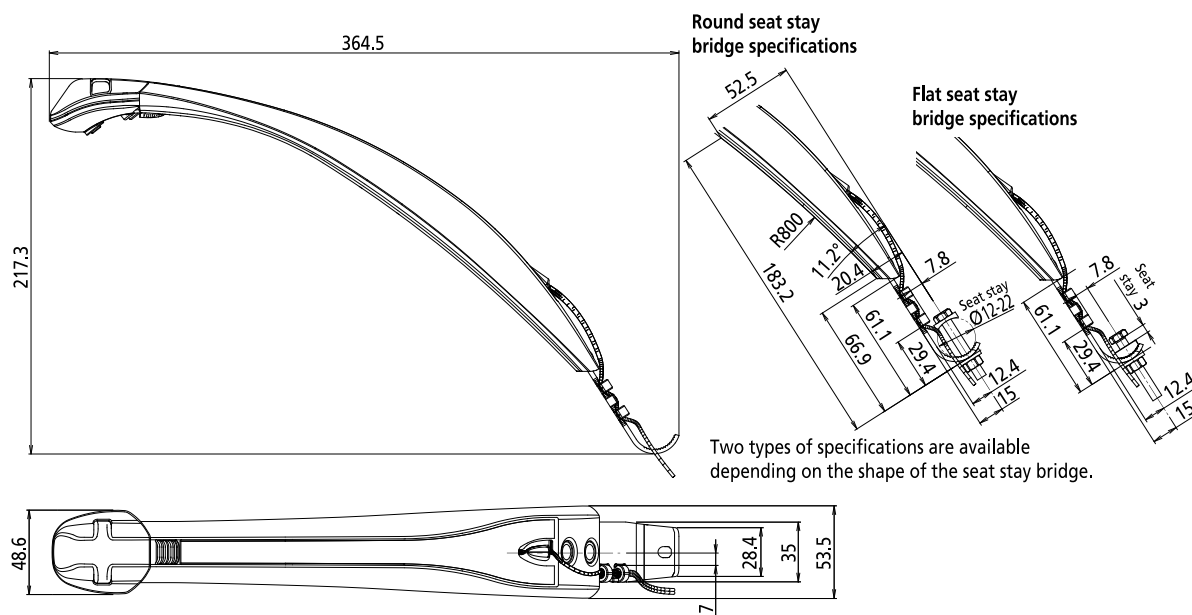
Adjust the mounting angle within the recommended range of 20 to 60 degrees to obtain correct forward lighting.



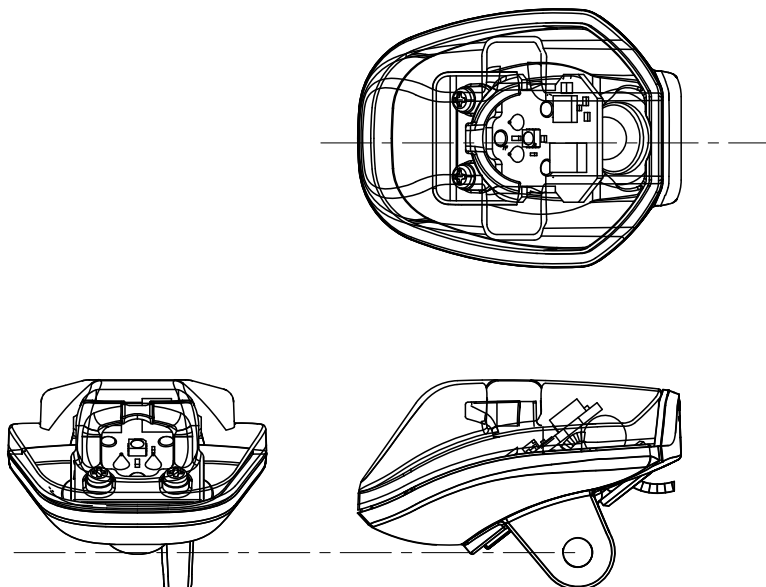
## LP-RTX2



## Mud guard style stay type C-325

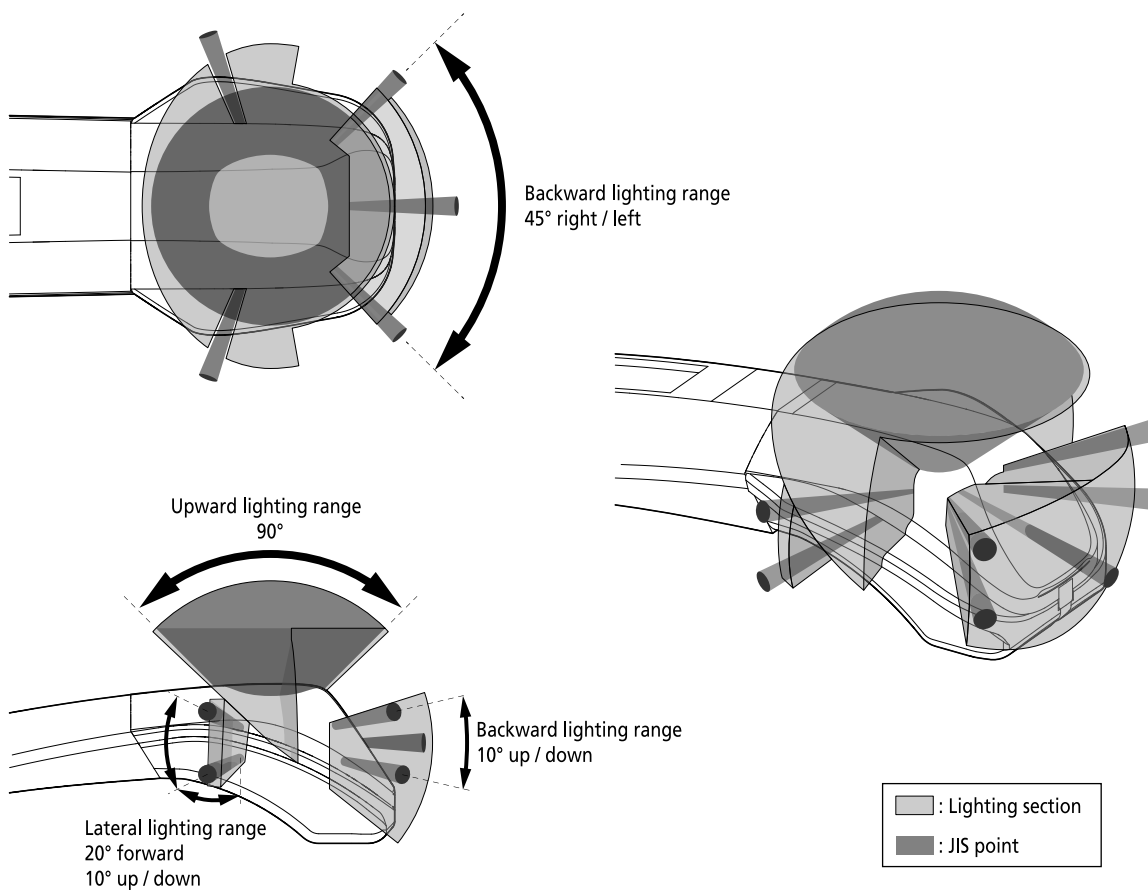


## Seat stay mount with adapter C-326



## Irradiation angle C-327

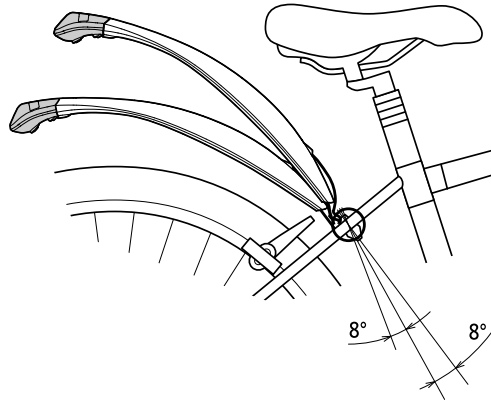
It is a JIS-compliant taillight. It makes your bicycle highly conspicuous to drivers.



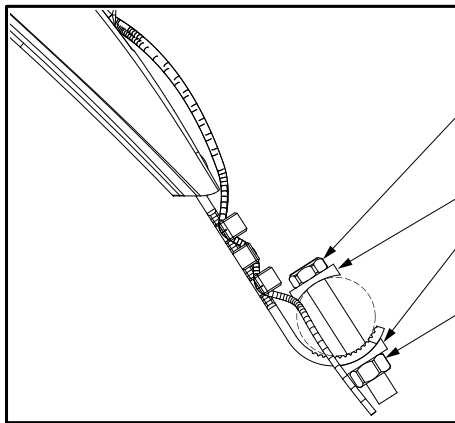
## Angle adjustment range C-328

### LP-RTX2 Mud guard style stay type

The angle adjusting mechanism provides an upward / downward angle adjustment of approximately 8 degrees.



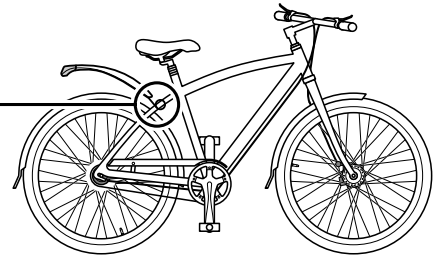
### Round seat stay bridge specifications



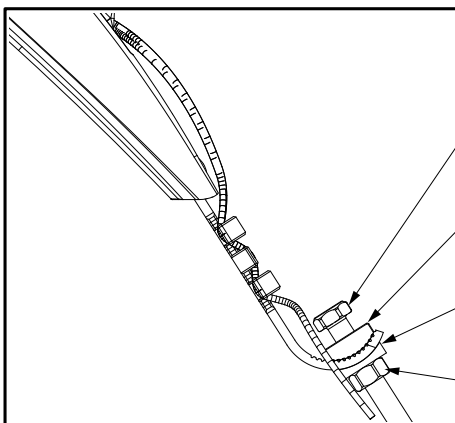
M6-bolt  
(not included.)

R-washer  
(included)

M6 nut  
(not included.)



### Flat seat stay bridge specifications

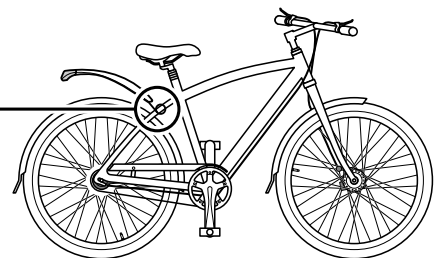


M6-bolt  
(not included.)

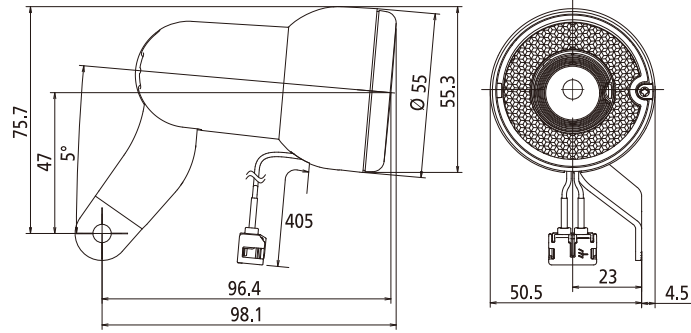
Adapter  
(included)

R-washer  
(included)

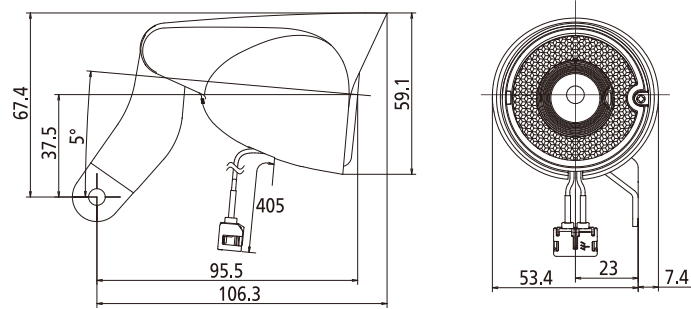
M6 nut  
(not included.)



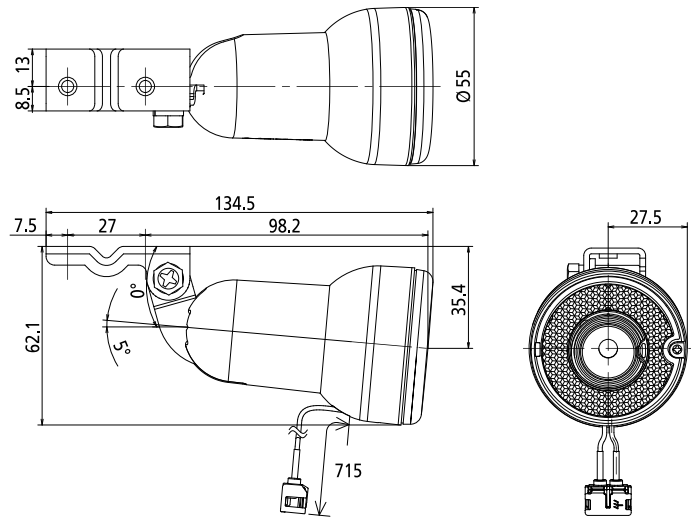
## LP-C2100-S



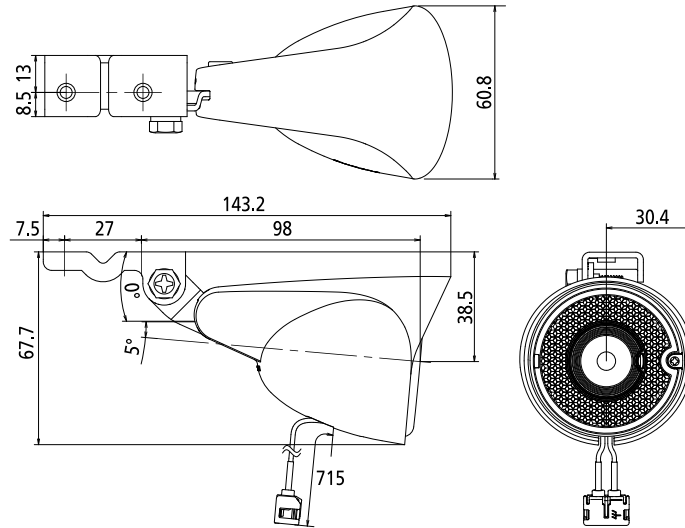
## LP-C2101-S



## LP-C2100-B



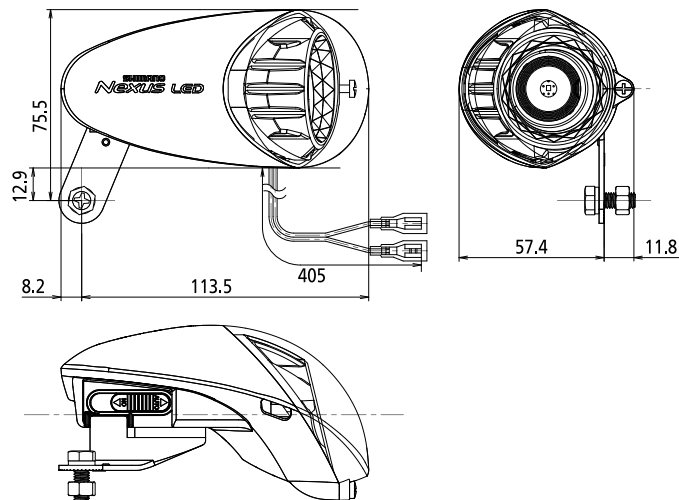
## LP-C2101-B



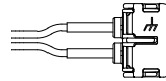
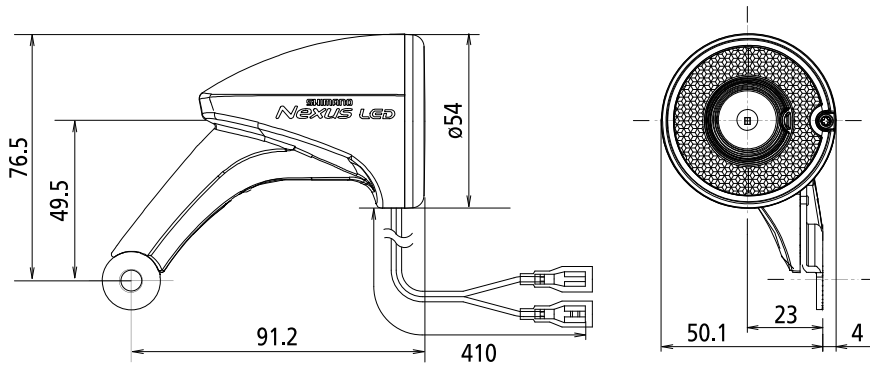
## LP-X103

Basic dimensions of LP-X103 equipped with the 1W main LED that can blink even while the bicycle is not running.

- \*Connecting this light with SL-RS34 / SM-RS34 or LP-RTX2 allows the 1W main LED and all other LEDs to blink for approximately 1 minute.
- \*Both J2 terminals and connectors are available.

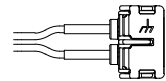
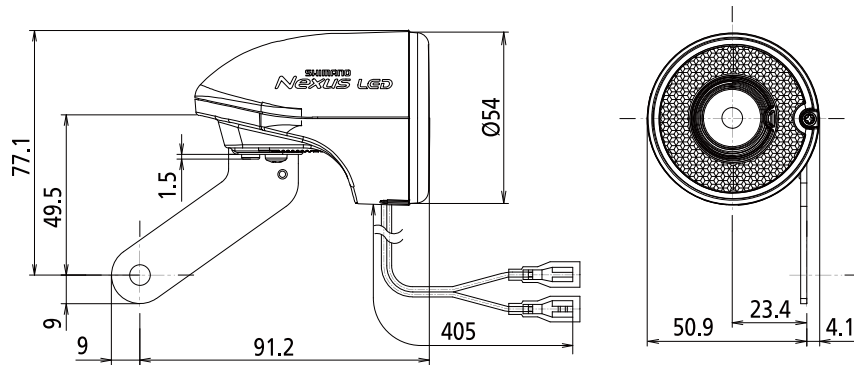


# LP-X101H



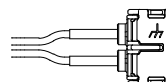
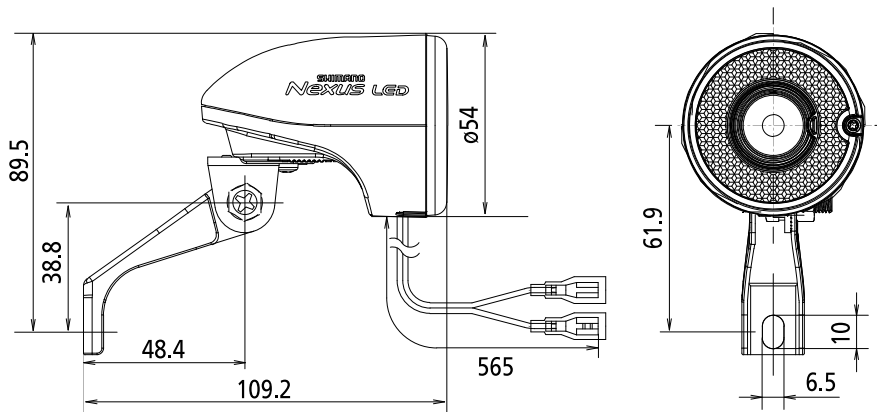
0.9w type connector

# LP-X102H



0.9w type connector

# LP-X102HC



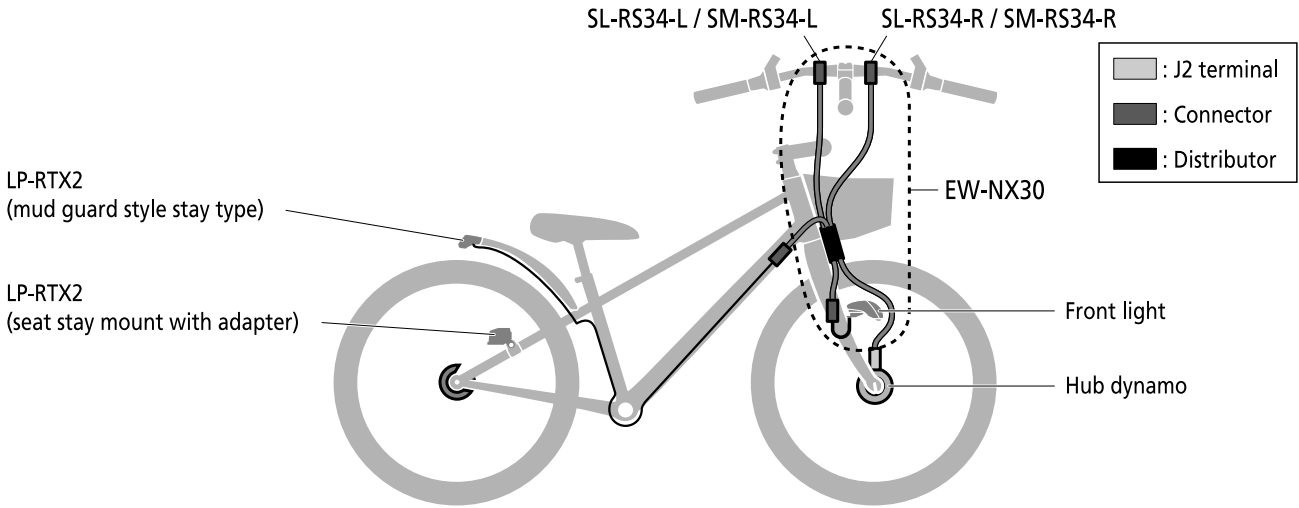
0.9w type connector

# Electric wire for Japan Market

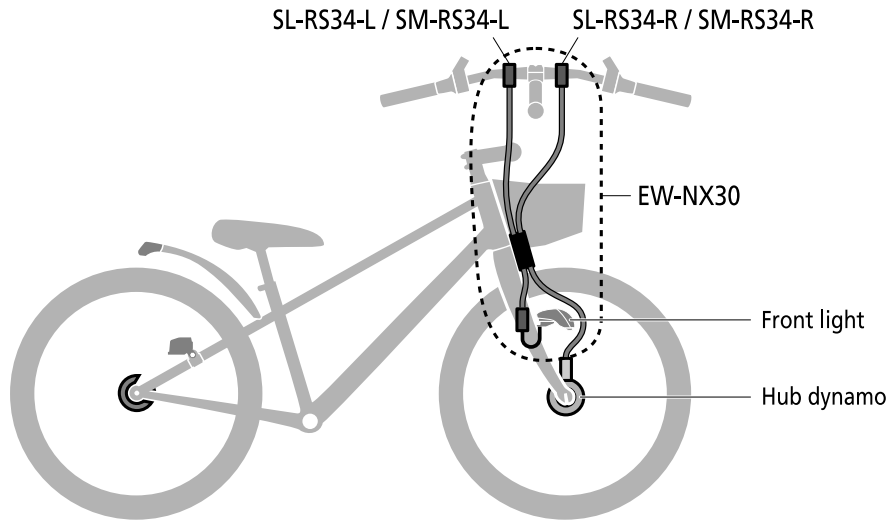
## Electric wire specification / Routing C-331

Required electric cord specifications differ depending on the products used in combination such as a tail light and a shifting lever equipped with an LED position light.

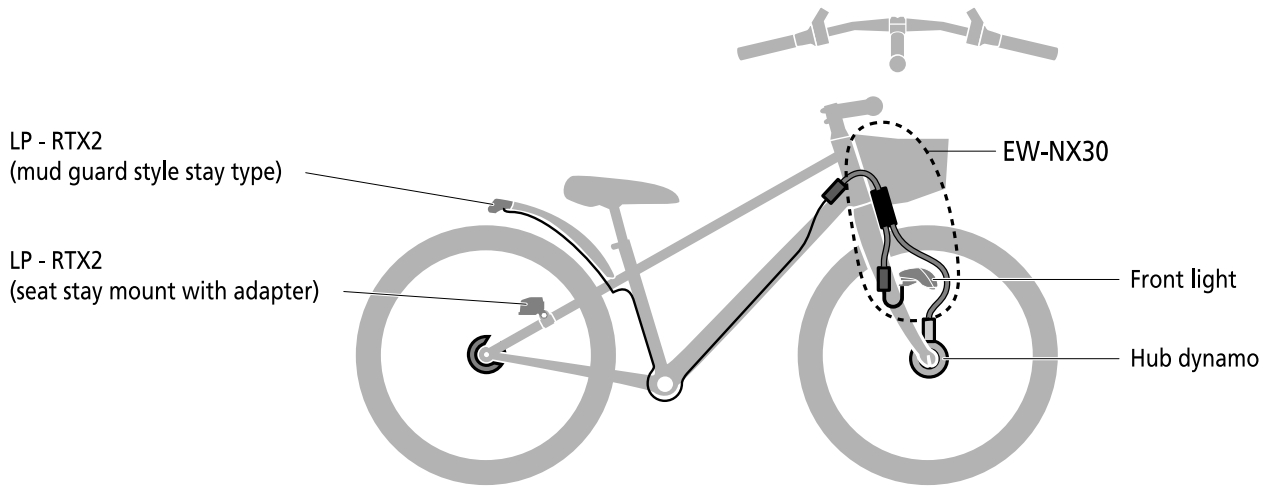
### 4B type



### 3B type



## 2B type

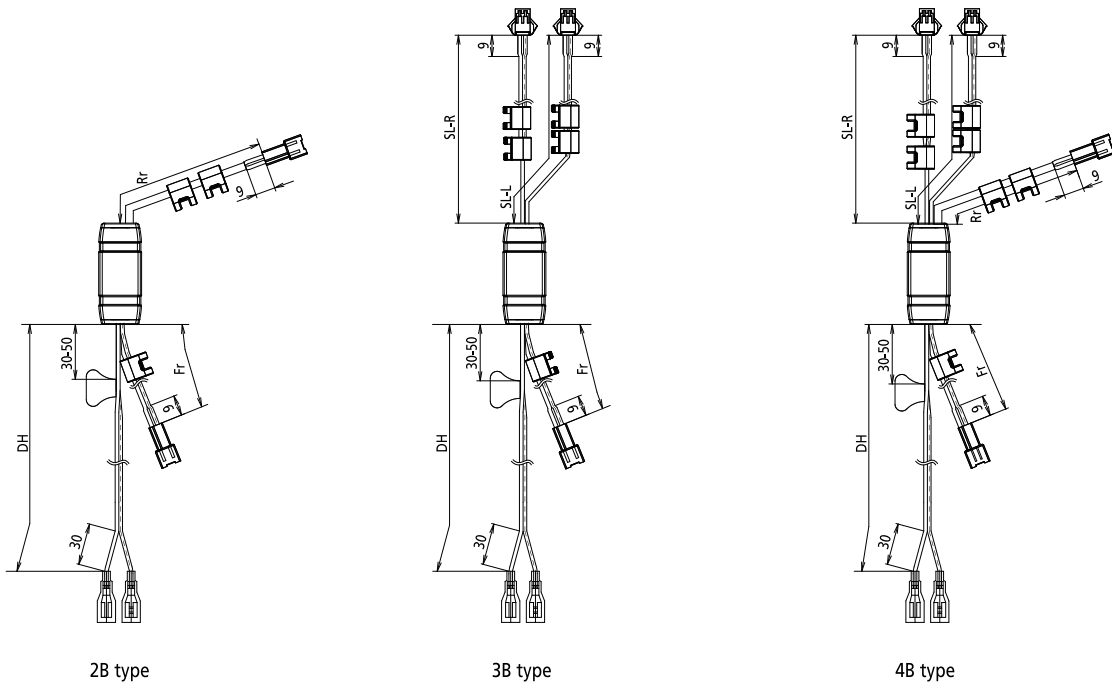


**Table of correspondences between lighting system and electric wire specifications**

Light type	4B type	3B type	2B type
Auto light	X	X	X
LED position light	X	X	-
Tail light	X	-	X

X: Yes

## EW-NX30



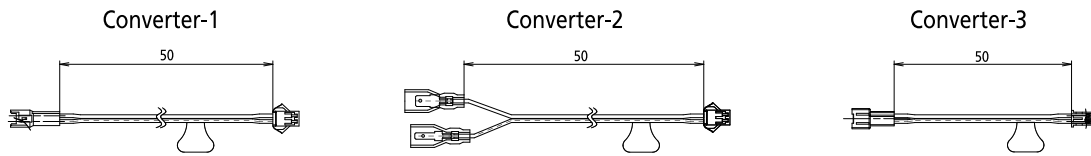
2B type

3B type

4B type

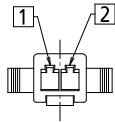
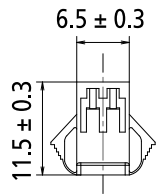
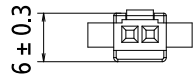
Model No.	Spec.	DH (mm) to hub dynamo	Fr (mm) to Front light	SL-R (mm) to SL/SM-Right	SL-L (mm) to SL/SM-Left	Rr (mm) to Tail light
EW-NX30-2B	SPEC 1	800	570	-	-	270
	SPEC 2	1000	570	-	-	270
EW-NX30-3B	SPEC 1	800	570	175	65	-
	SPEC 2	1000	570	175	215	-
EW-NX30-4B	SPEC 1	800	570	175	65	270
	SPEC 2	1000	570	175	215	270

## Converter type

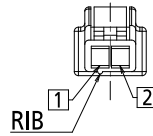
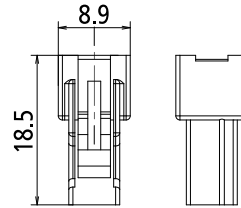
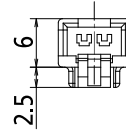


## Connector terminal dimensions

Connector (with pin hole)

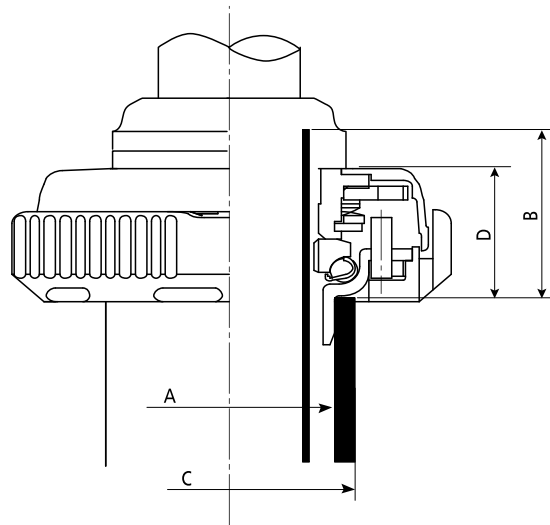


Connector (with pin)



## Headset dimensions

C-333

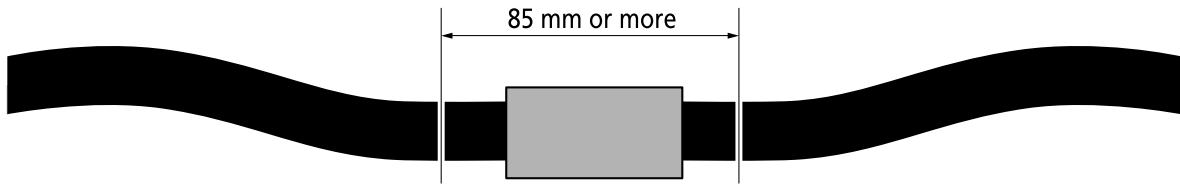


Model No.	HP-NX10
A (mm)	ø29.85 - 30.0 or ø30.01 - 30.2
B (mm)	30.5 - 31.5
Front fork stem thread size	BC 1" X 24T.P.I
C (mm)	ø38 (max.)
D (mm)	21.7
Head tube material	Steel

## Required straight section of handle bar

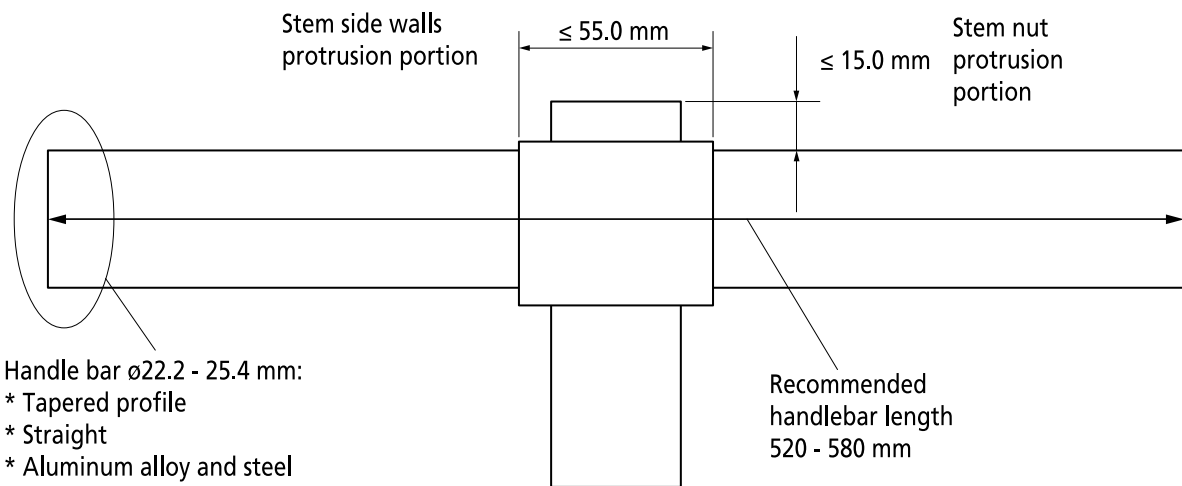
C-335

Use handle bars that have a minimum length of 85 mm in the straight section.

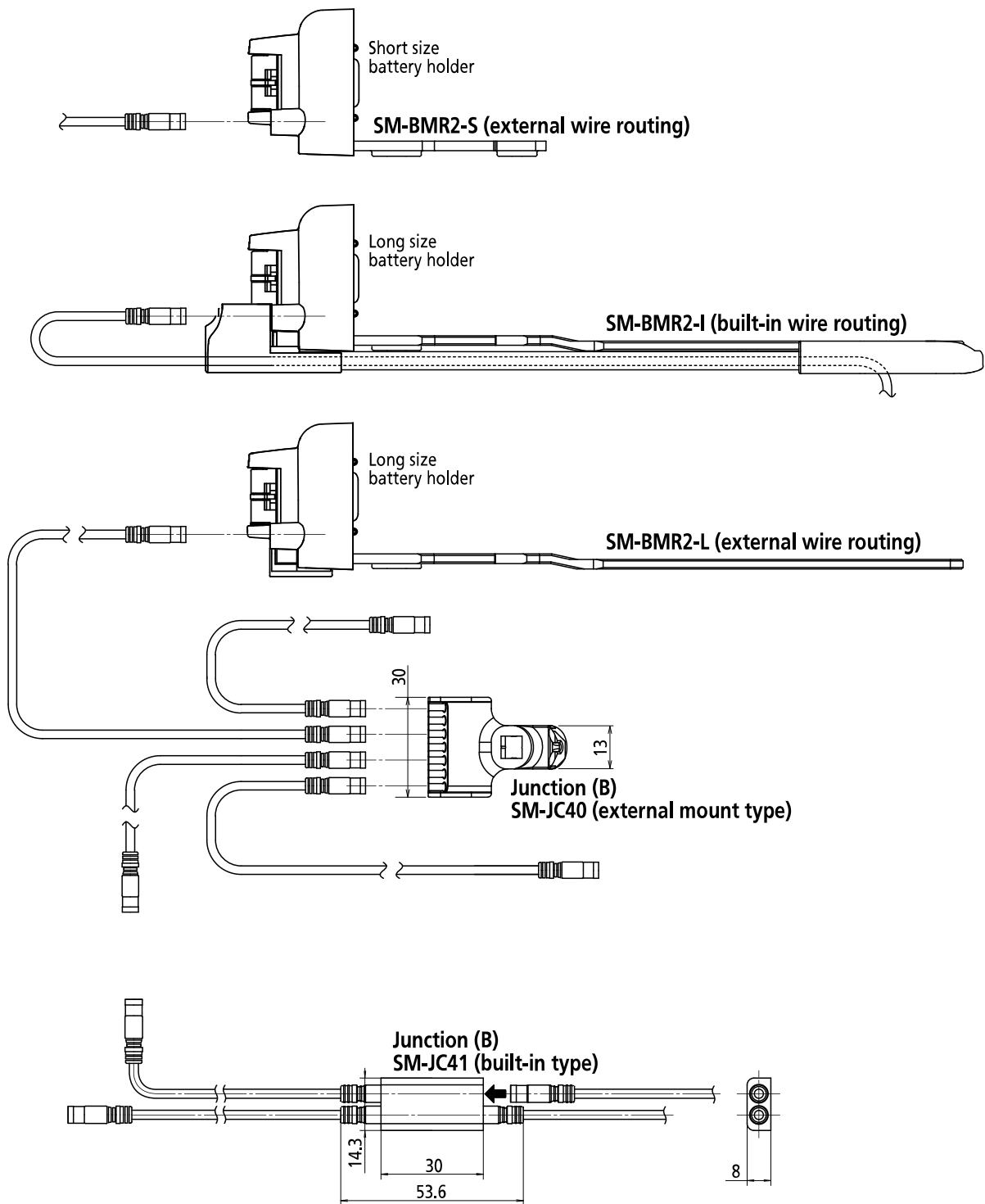


## Recommended handle bar and stem dimension

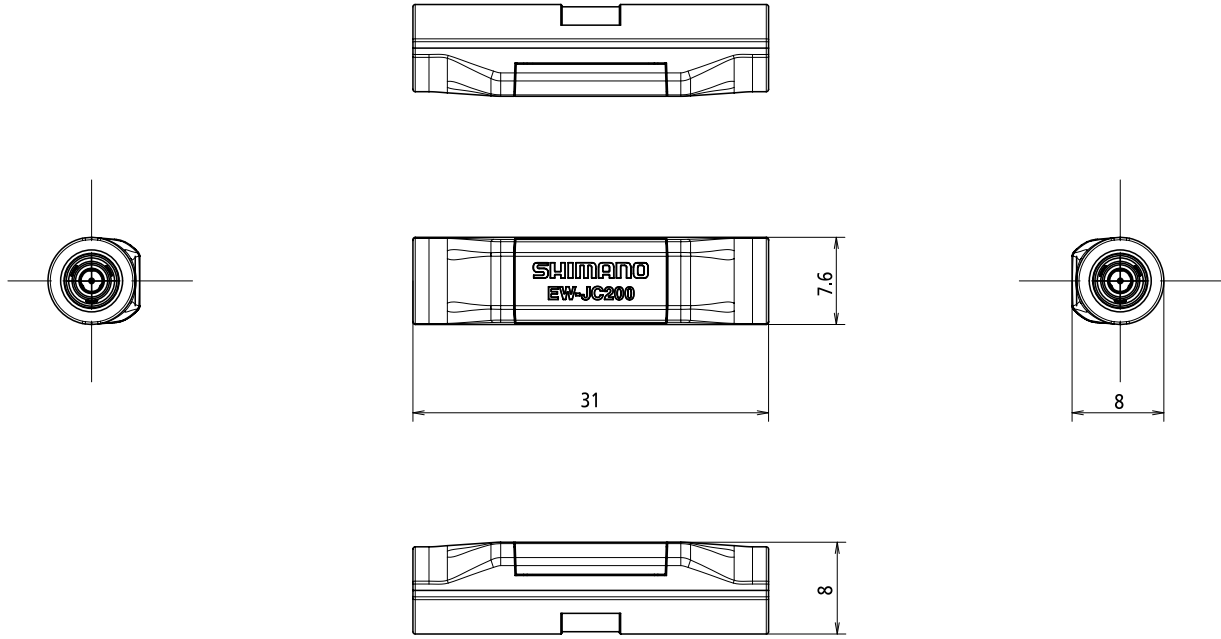
C-336



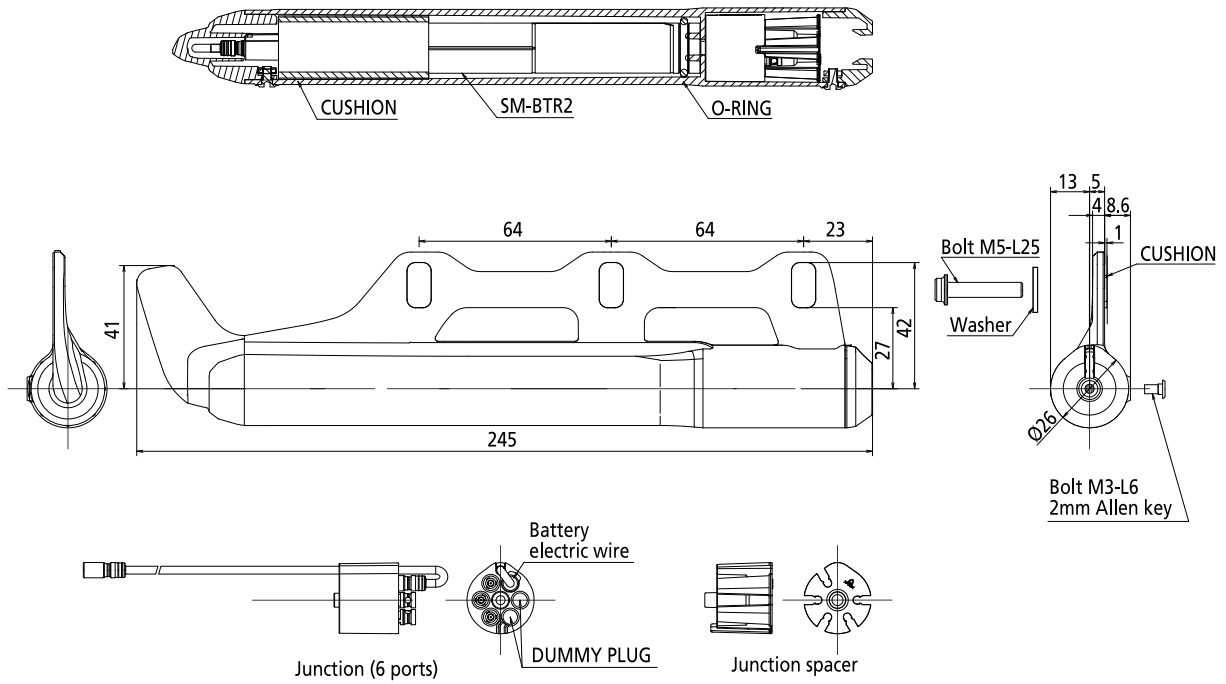
## Battery holder and Junction (B)



EW-JC200



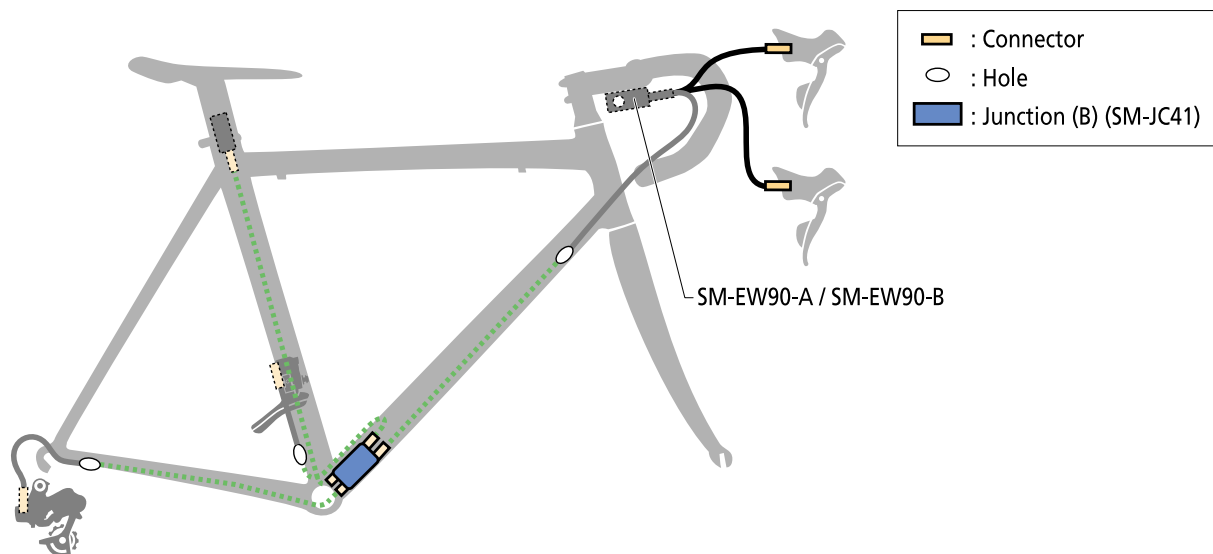
SM-BTC1



# Junction (A)

## Specification of SM-EW90-A / SM-EW90-B C-341

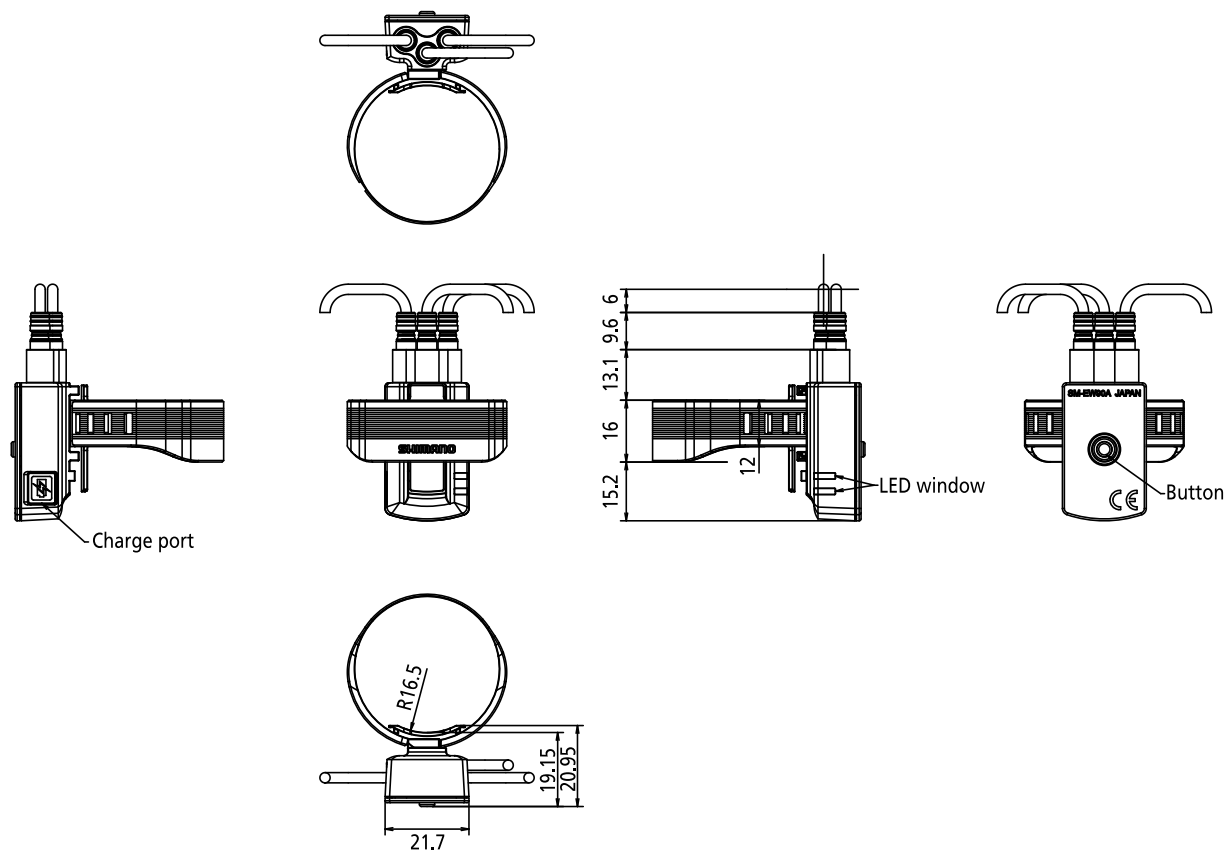
### Wire routing



### SM-EW90-A

Outer circumference of corresponding stem (95-175 mm).

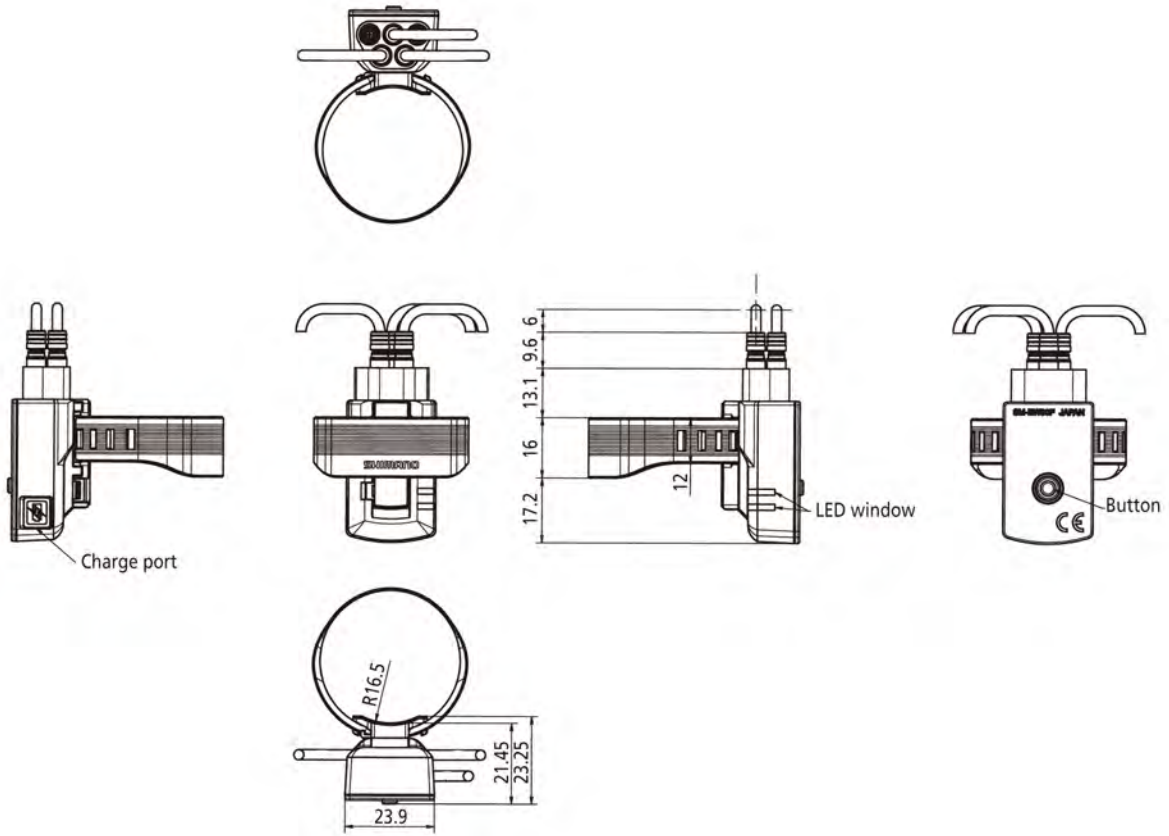
Use the rubber band to secure the junction box under the stem, and cut the unnecessary part of the band.



**SM-EW90-B**

Outer circumference of corresponding stem (95-175 mm).

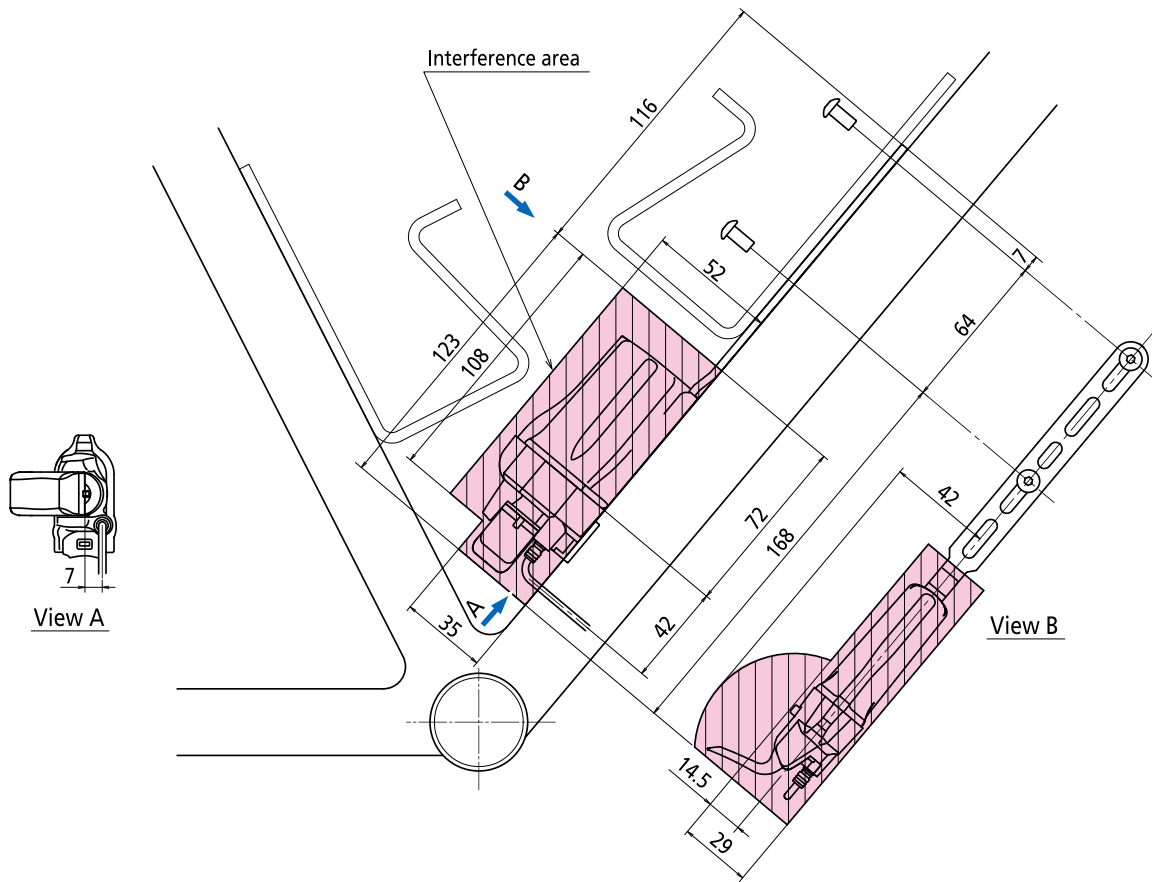
Use the rubber band to secure the junction box under the stem, and cut the unnecessary part of the band.



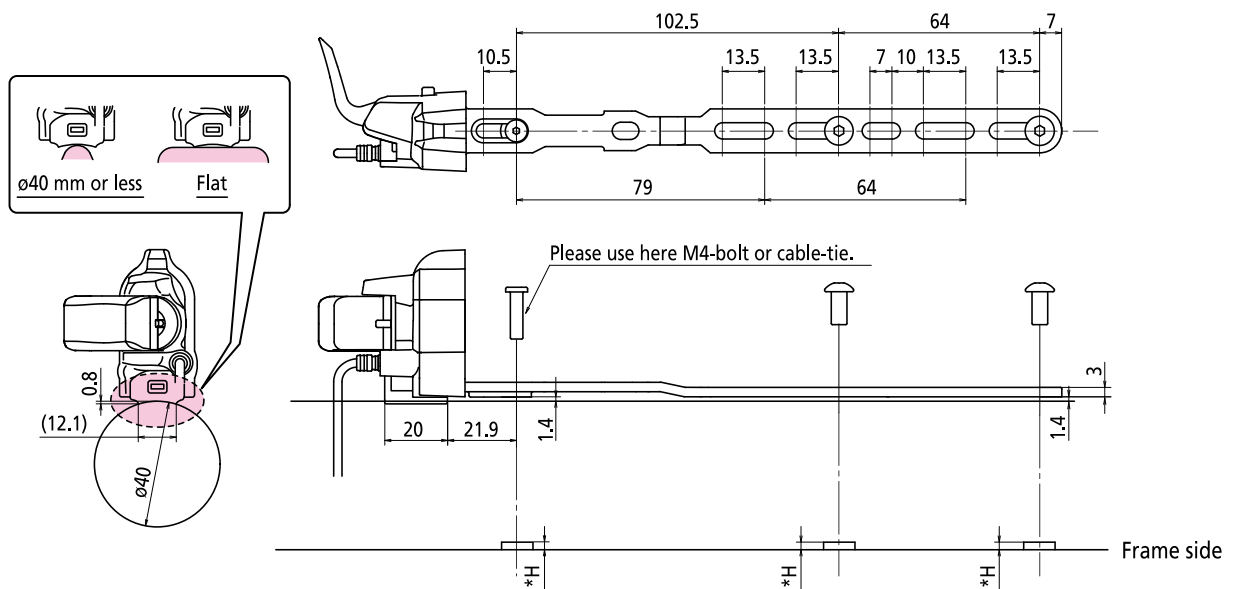
# Battery mount

## Long size battery mount C-343

### SM-BMR2-L (external wire routing)



### Bolt mount



\*H = 1.4: In case the installation surface is less than ø40.

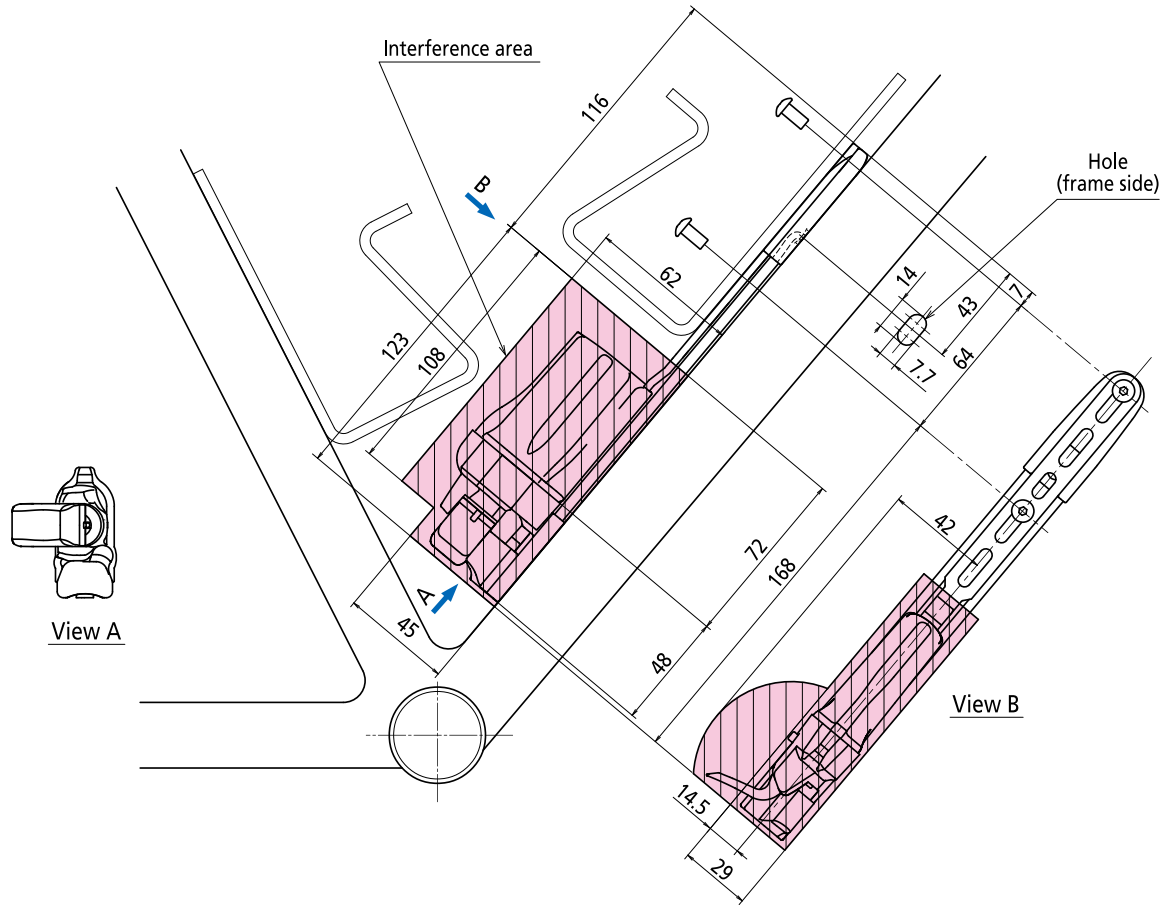
H = 2.2: In case the installation surface is flat.

H = 1.4 - 2.2: In case the installation surface is more than ø40, please calculate the height from installation surface.

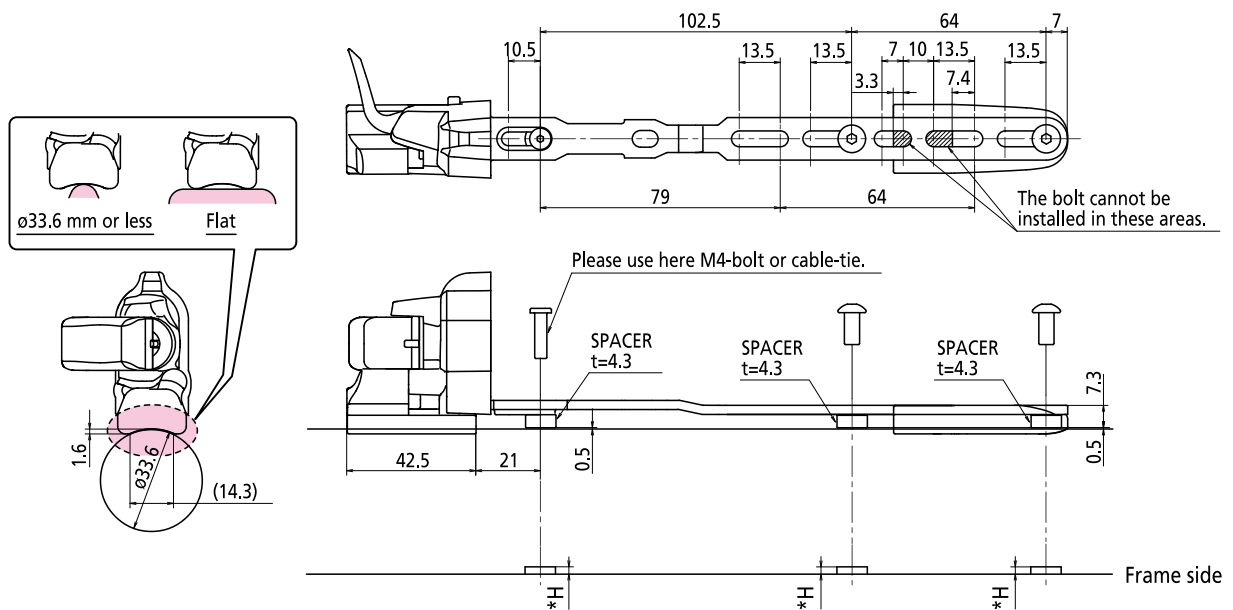
#### NOTE

- Do not bend the battery mount base when install to bicycle frame in order to keep battery removal clearance.
- The heights of the three bolt mount surfaces should be same.

## SM-BMR2-I (built-in wire routing)



## Bolt mount



\*H = 0.5: In case the installation surface is less than ø33.6.

H = 2.1: In case the installation surface is flat.

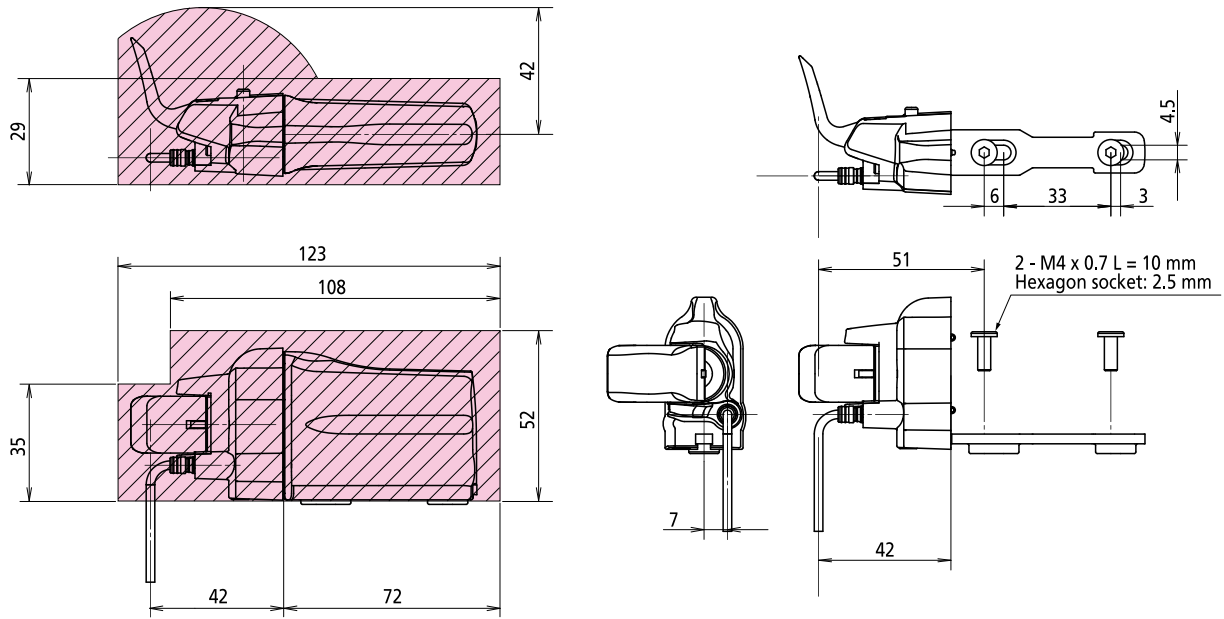
H = 0.5 - 2.1: In case the installation surface is more than ø33.6, please calculate the height from installation surface.

**NOTE**

- Do not bend the battery mount base when install to bicycle frame in order to keep battery removal clearance.
- The heights of the three bolt mount surfaces should be same.



## Short size battery mount C-344

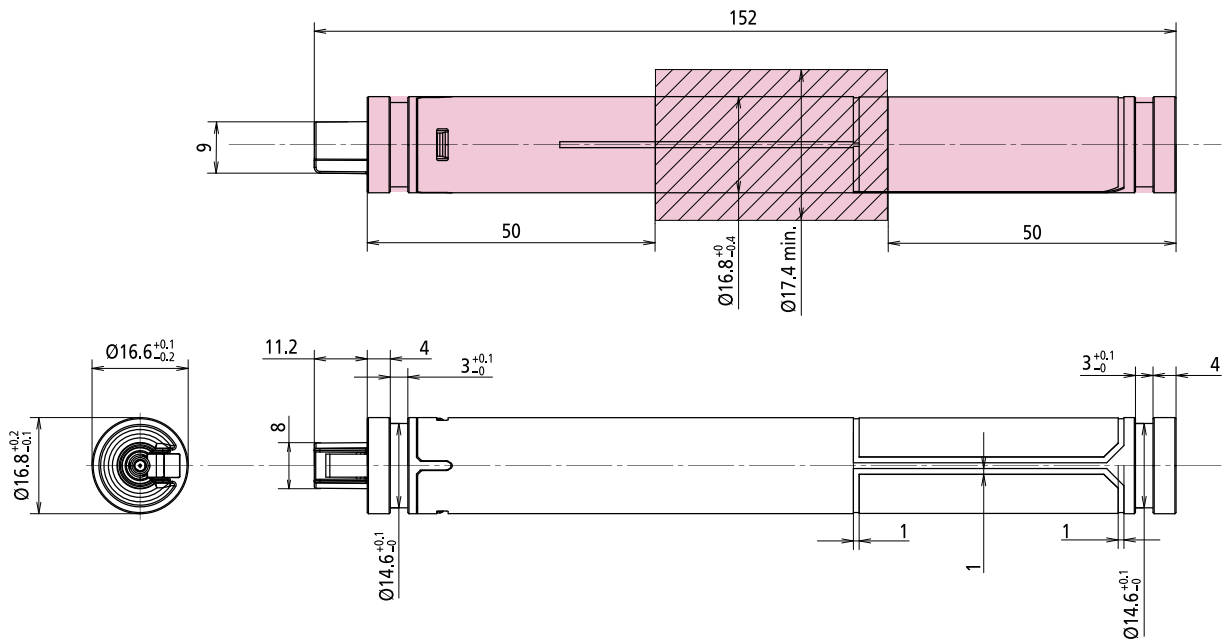
### SM-BMR2-S (external wire routing)



## Built-in type battery C-345

### SM-BTR2

 : Interference region  
 : available area that can be held by adapter

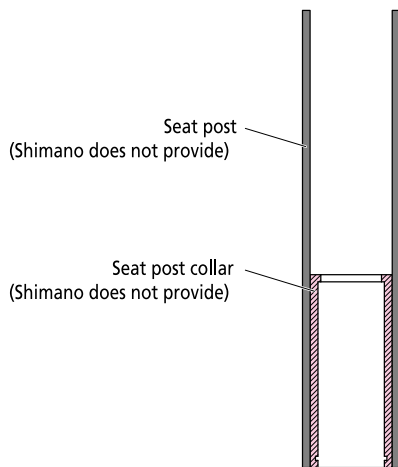


# Installation of built-in type battery C-346

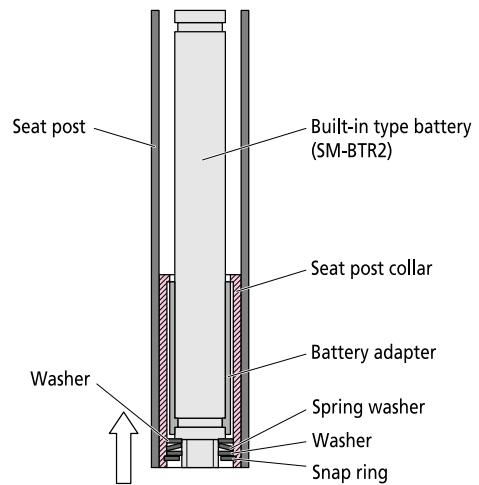
## SM-BTR2

Shimano produces "battery adapter", "spring washer", "washer" and "snap ring". This fixation ideas is proposed only for round type standard seat post.

- 1) Bond seat post collar to inside of seat post

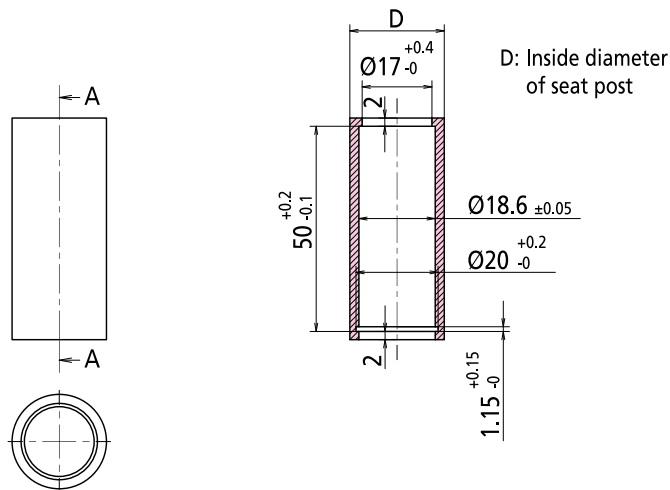


- 2) Insert internal battery into the collar from the bottom of seat post

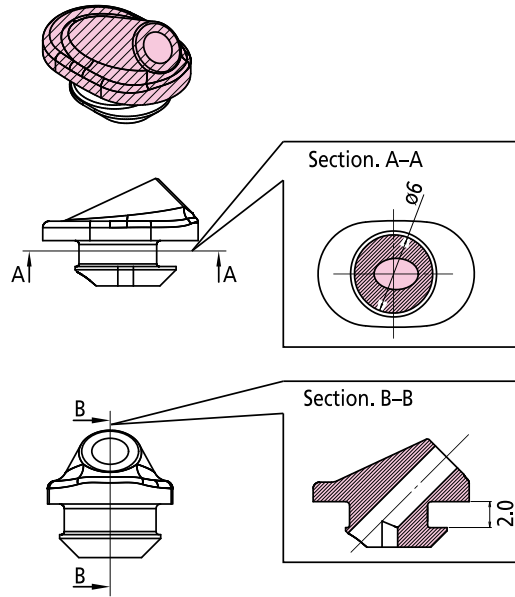


- 3) Fix the battery with snap ring

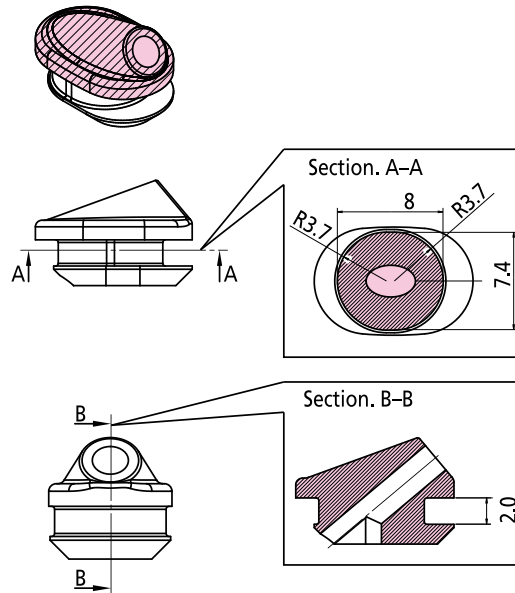
### Seat post collar (Shimano does not provide)


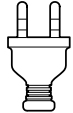



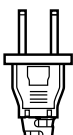

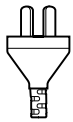




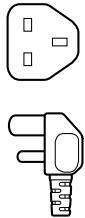
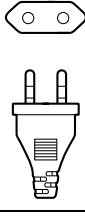
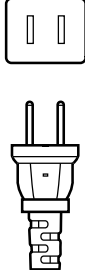
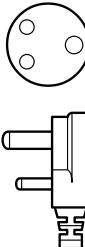
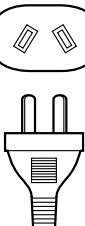
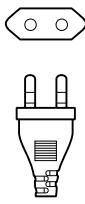
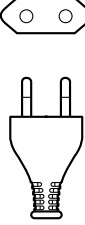
## SM-GM01



## SM-GM02



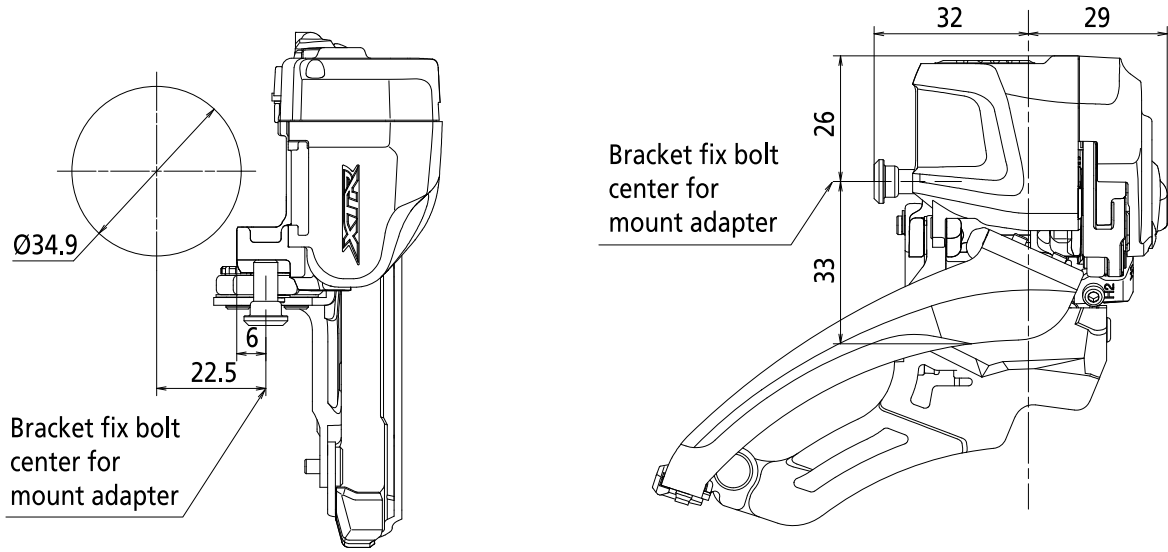
Type No.	Model No.	Power supply outlet shape	Typical example country / Region	Rated power input (V)	Cable length (m)
1	SM-BCC1-1	 	Europe	220	1
2	SM-BCC1-2	 	USA / Canada	120	2
3	SM-BCC1-3	 	Japan	100	1
4	SM-BCC1-4	 	Australia / New Zealand	240	1
5	SM-BCC1-5	 	China	220	1

Type No.	Model No.	Power supply outlet shape	Typical example country / Region	Rated power input (V)	Cable length (m)
6	SM-BCC1-6		U.K	240	1
7	SM-BCC1-7		Korean	220	1
8	SM-BCC1-8		Taiwan	110	1
9	SM-BCC1-9		South-Africa	220 / 230	1
10	SM-BCC1-10		Argentina	220	1
11	SM-BCC1-11		Israel / Brazil	230	1
12	SM-BCC1-12		Brazil	127 / 220	1

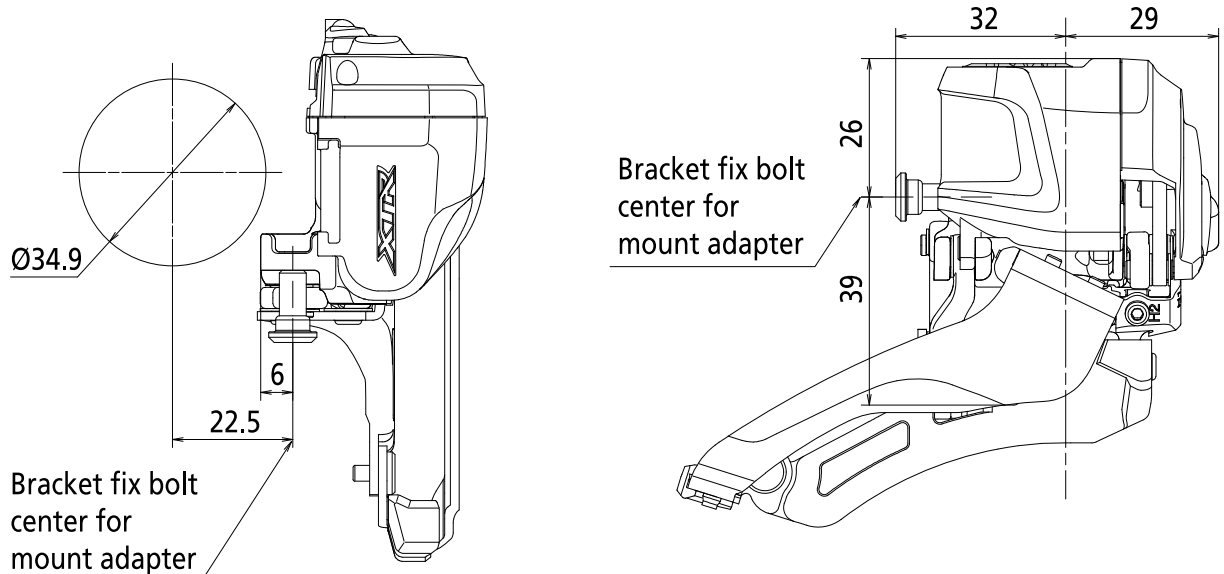
## Front derailleur

C-350

### FD-M9050

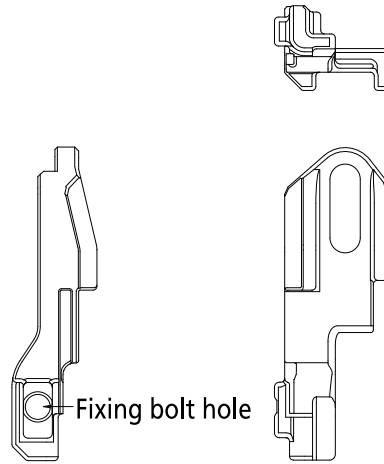


### FD-M9070

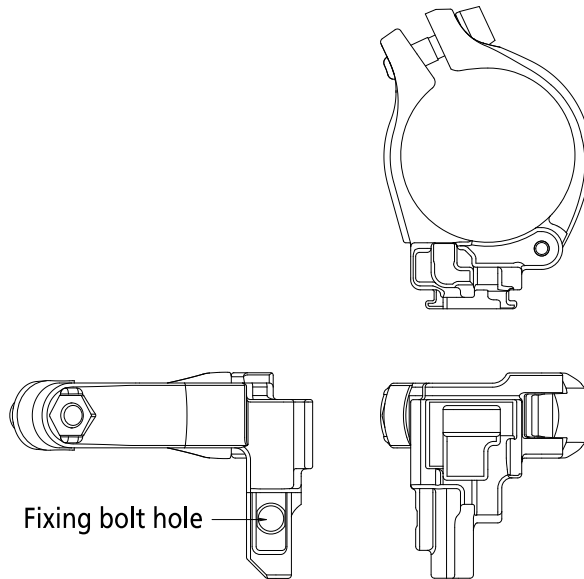


# Mount adapter for front derailleur C-351

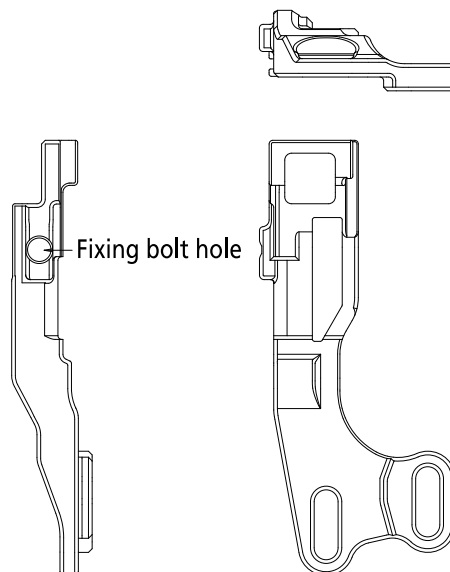
## SM-FD905-D



## SM-FD905-H High-clamp

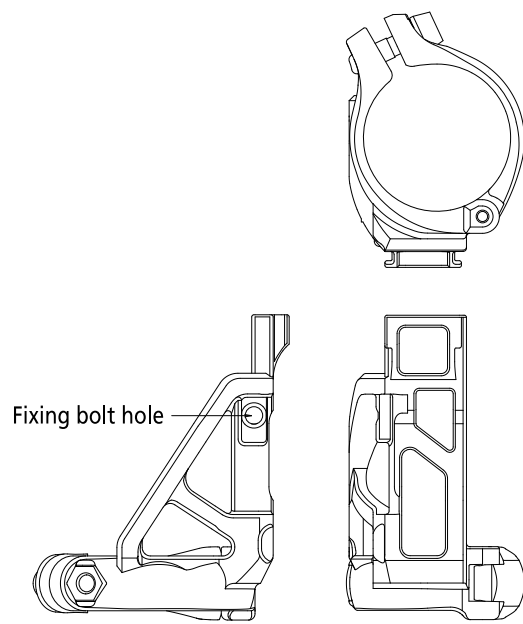


## SM-FD905-E E-type

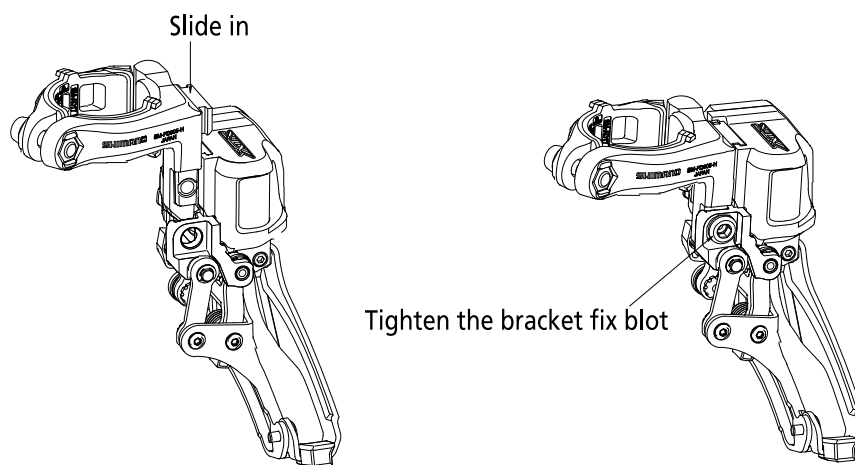


# SM-FD905-L

Low-clamp



## How to assemble adapter C-352

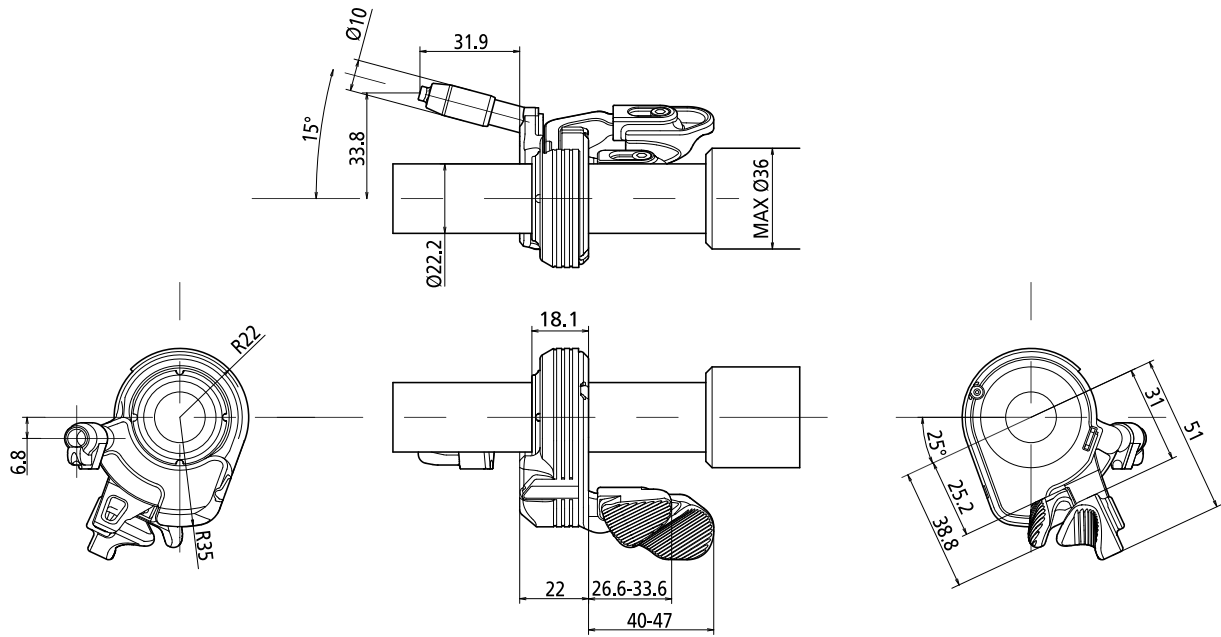


# Shifting switch

C-353

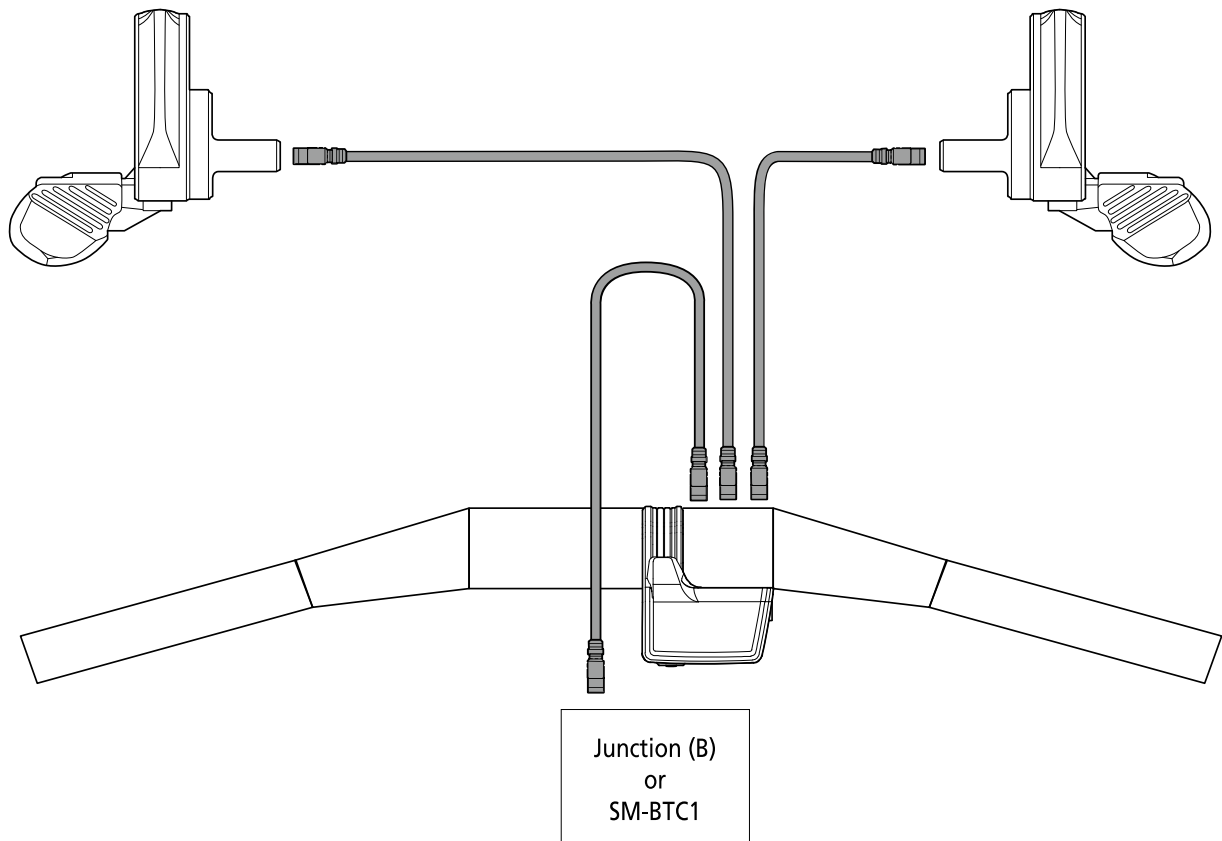
## Dimensions C-354

SW-M9050-R

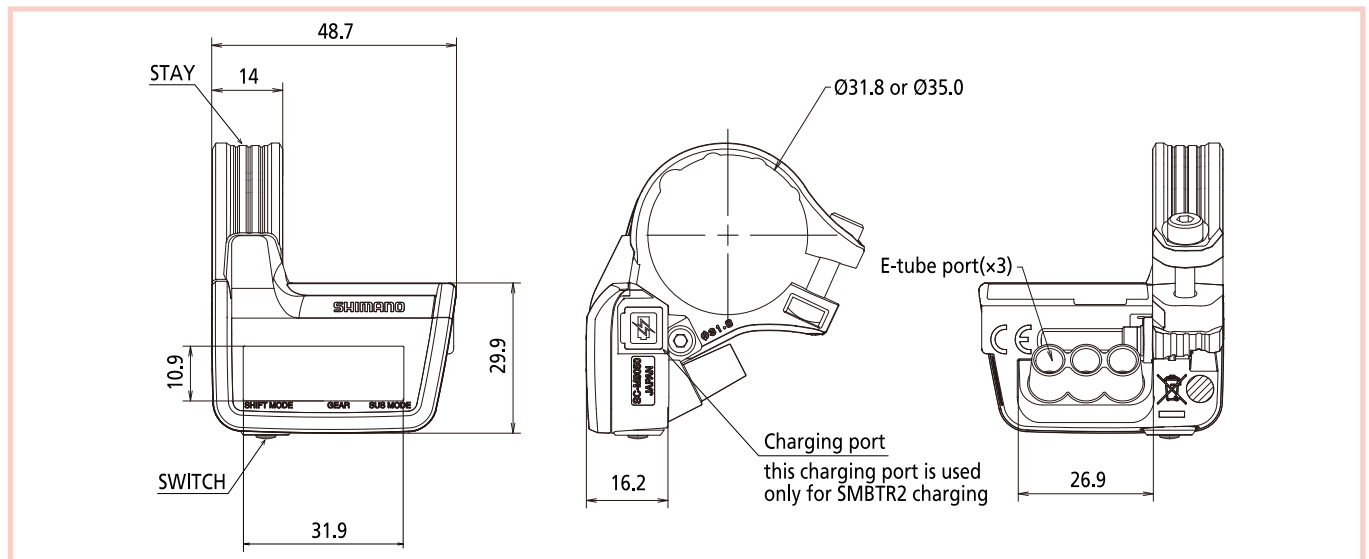


## SC-M9050

### Wire routing



### Dimensions

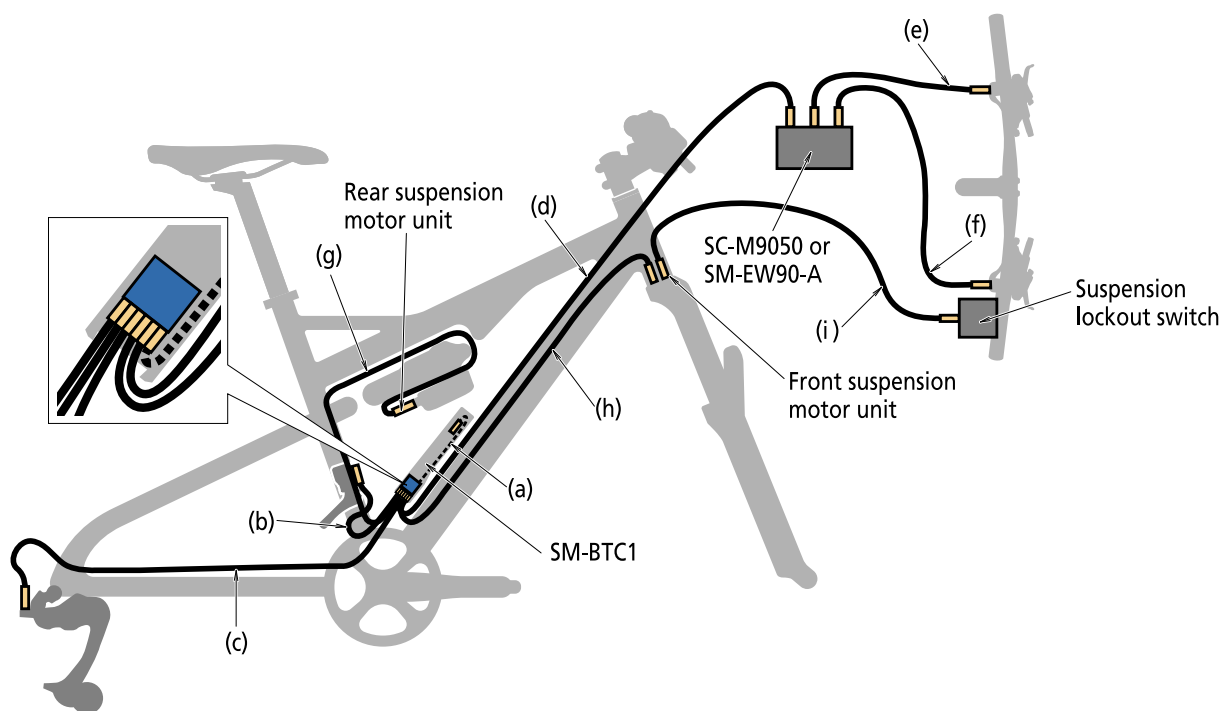


\* different size of clamp band are available

# Electric wire routing

## External type

### External type 1 (With suspension)

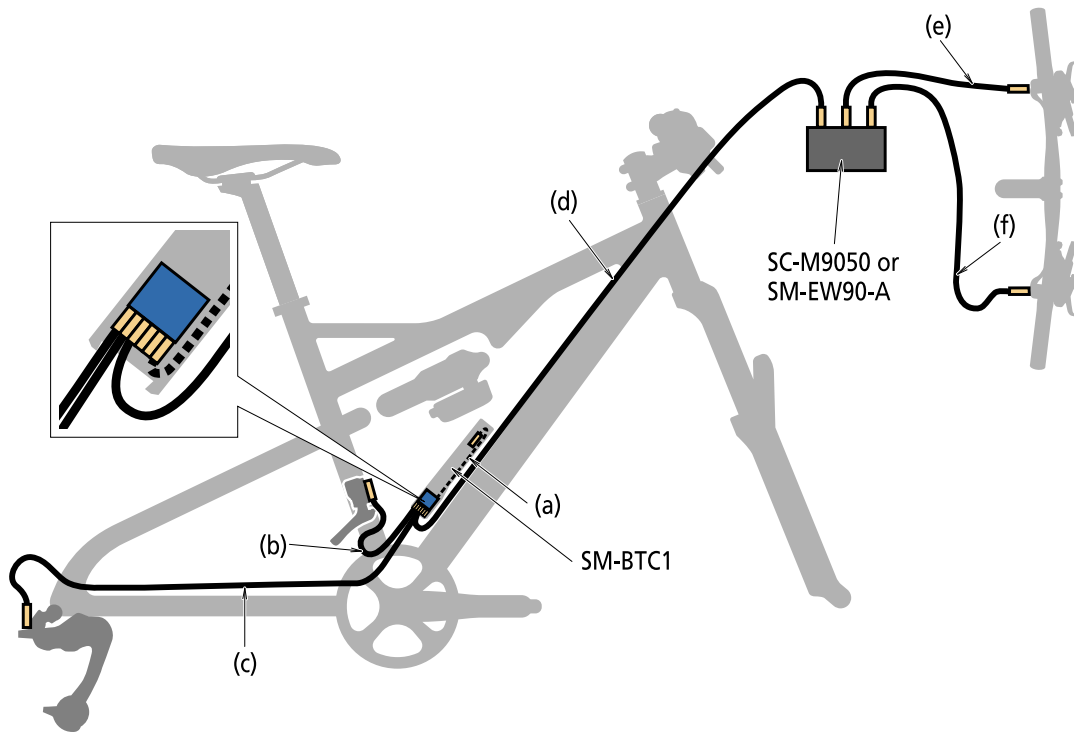


Each cable's maximum length

- a) =270mm
- b) ≤ 300mm
- c) ≤ 1000mm
- d) ≤ 1200mm
- e) ≤ 300mm
- f) ≤ 300mm
- g) ≤ 1000mm
- h) ≤ 1000mm
- i) ≤ 600mm

## External type 2 (Without suspension)

- Can be installed with SM-EW90-A when suspension is not used.  
SM-EW90-B is required when suspension is used.



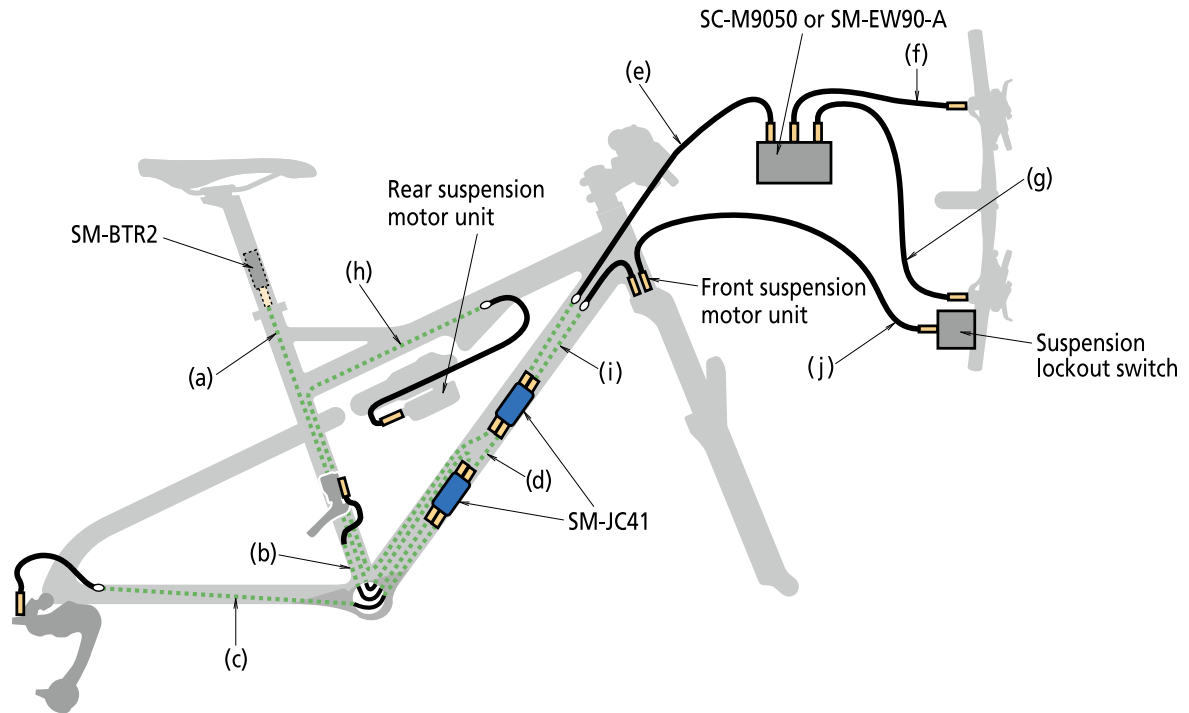
Each cable's maximum length

- a) =270mm
- b) ≤ 300mm
- c) ≤ 1000mm
- d) ≤ 1200mm
- e) ≤ 300mm
- f) ≤ 300mm

## Built-in type

### Built-in type 1 (Battery: seat post)

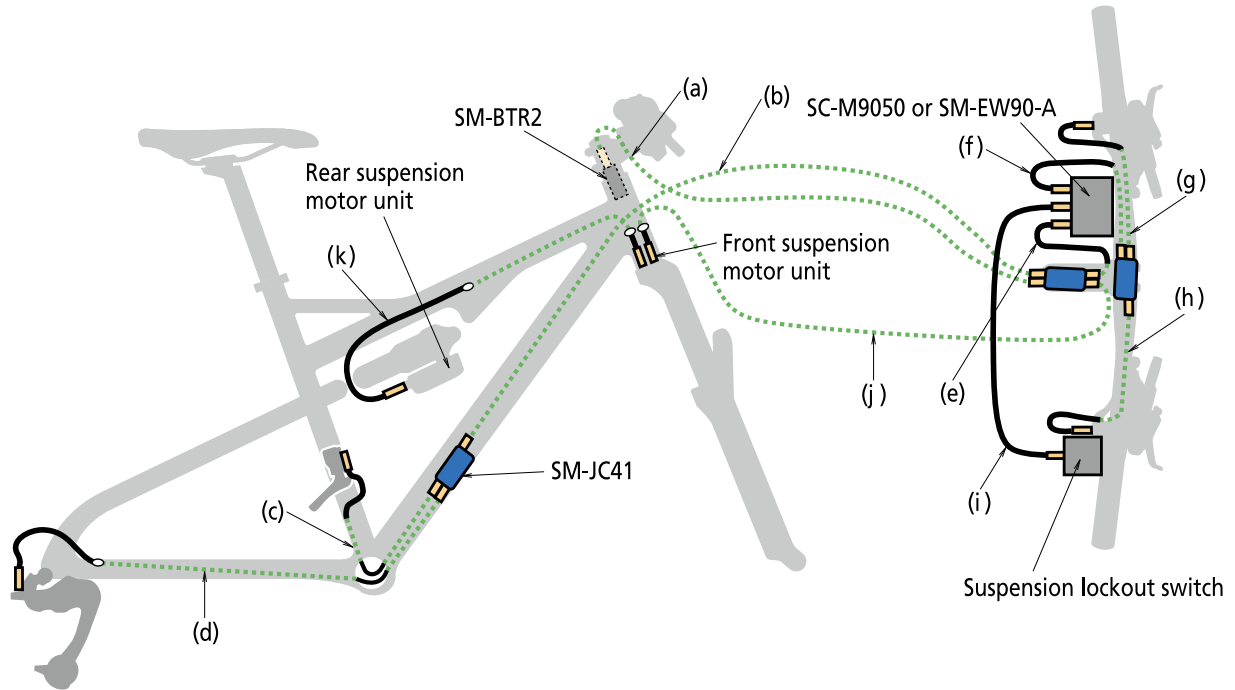
- Can be installed with SM-EW90-A when suspension is not used.  
SM-EW90-B is required when suspension is used.



Each cable's maximum length

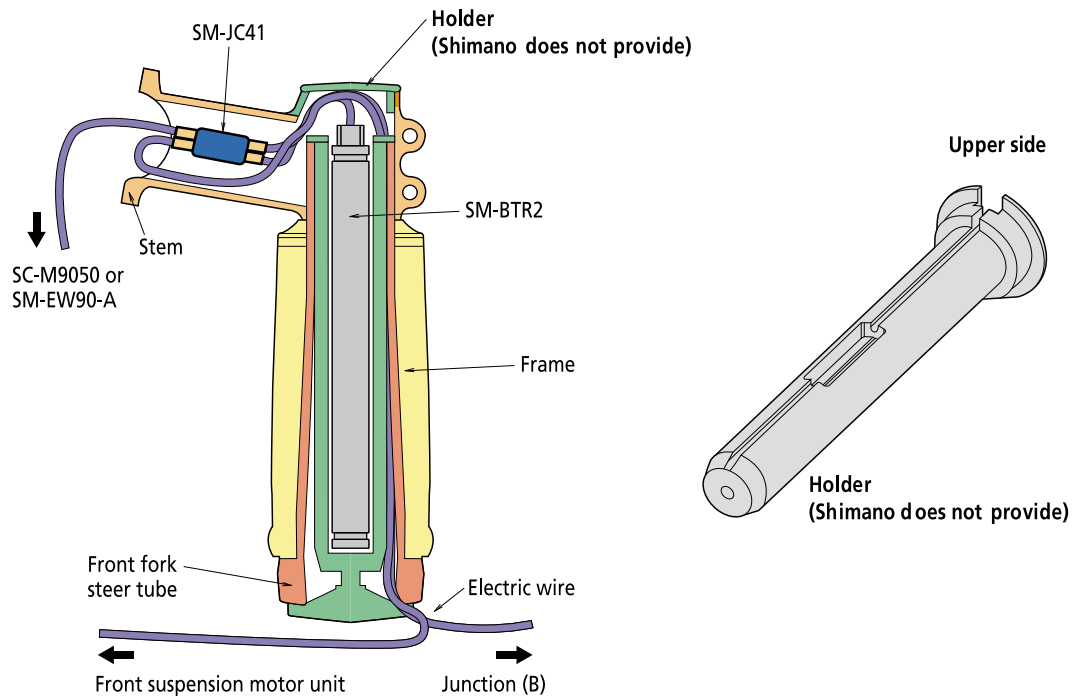
- a) ≤ 1000mm
- b) ≤ 500mm
- c) ≤ 800mm
- d) ≤ 150mm
- e) ≤ 1200mm
- f) ≤ 250mm
- g) ≤ 250mm
- h) ≤ 1500mm
- i) ≤ 1000mm
- j) ≤ 600mm

## Built-in type 2 (Battery: head tube)



Each cable's maximum length

- a) ≤ 150mm
- b) ≤ 1400mm
- c) ≤ 500mm
- d) ≤ 800mm
- e) ≤ 150mm
- f) ≤ 400mm
- g) ≤ 750mm
- h) ≤ 250mm
- i) ≤ 150mm
- j) ≤ 600mm
- k) ≤ 800mm

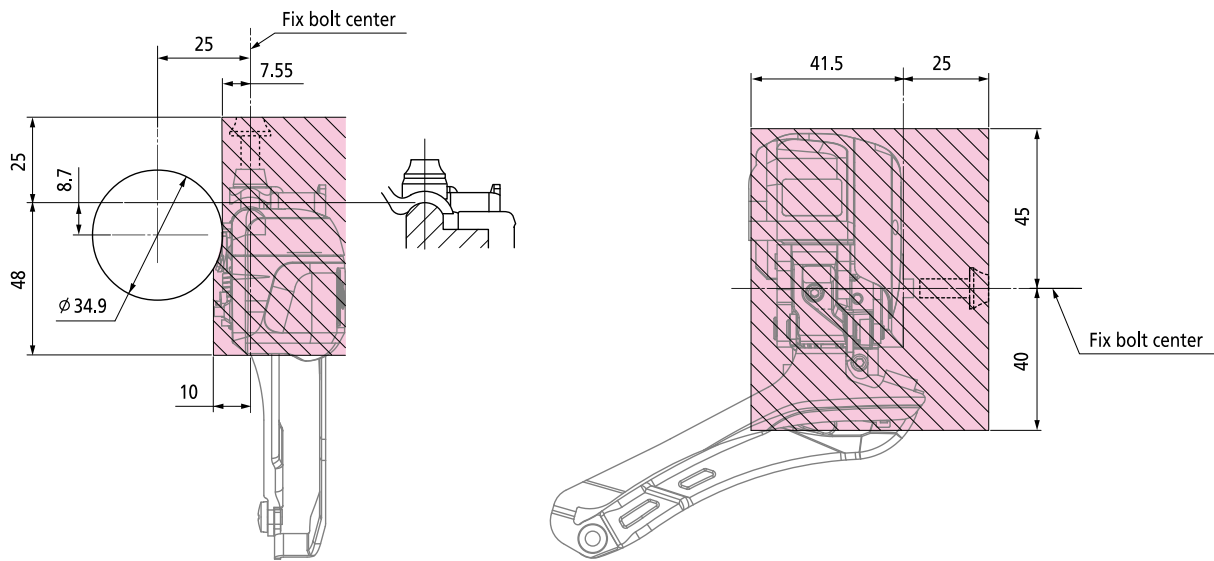


## Front derailleur

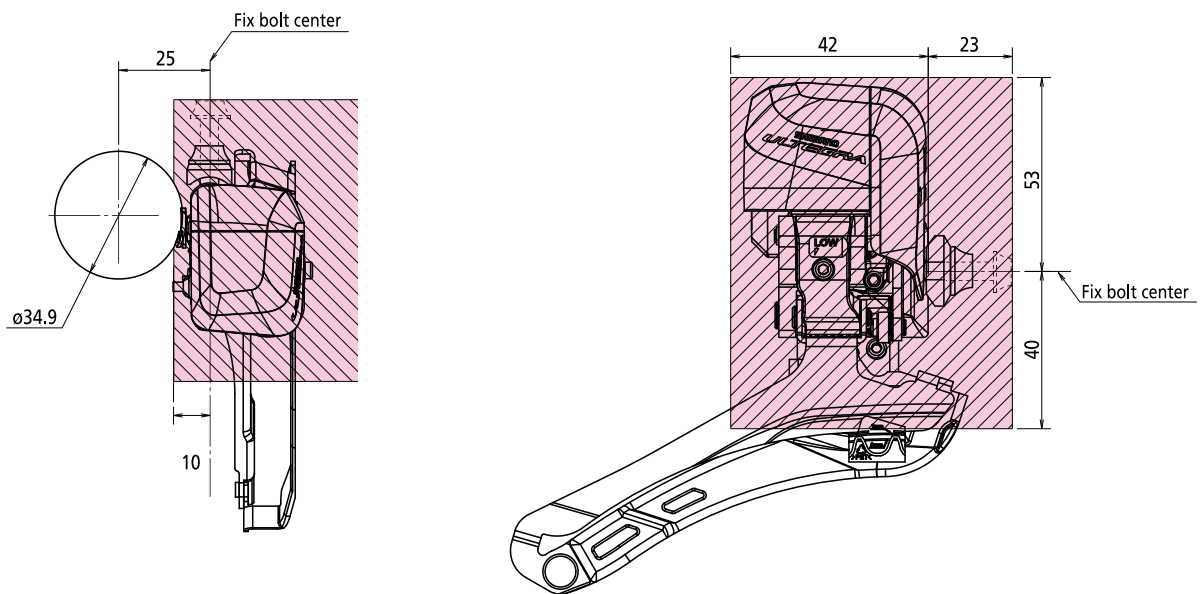
C-358

### Dimensions C-359

#### FD-9070-F / FD-9070-F+SM-AD90



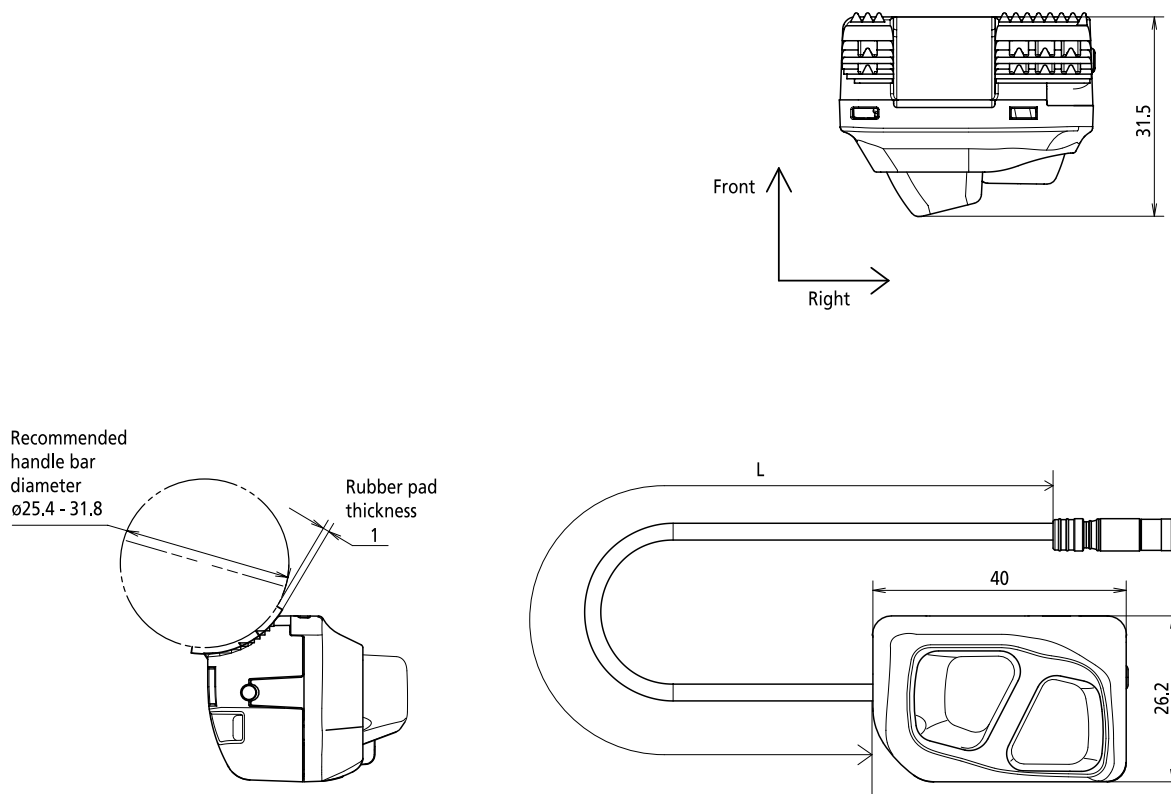
#### FD-6870 / FD-6870-F+SM-AD67



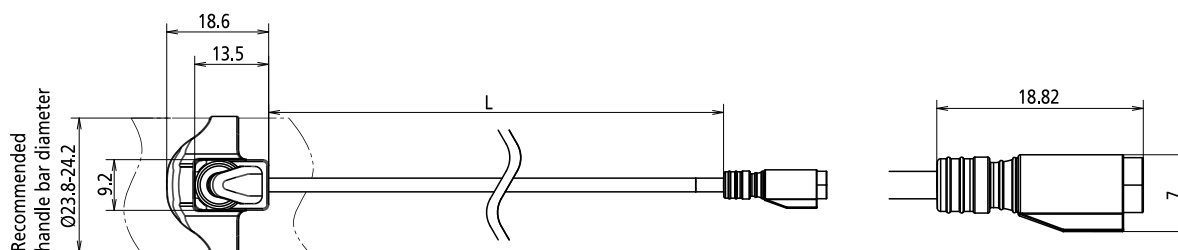
# Shifting switch

## Dimensions C-361

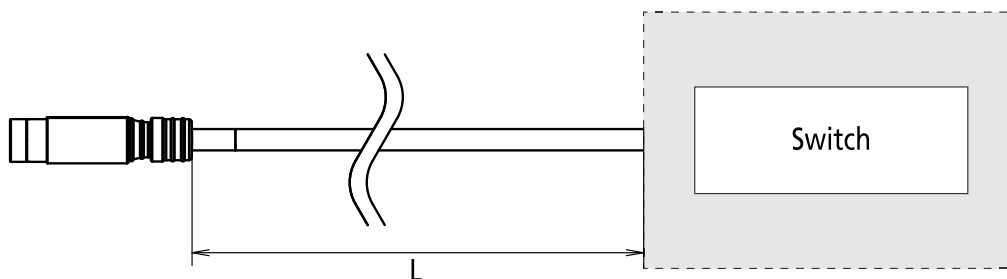
### SW-R600



### SW-R610



## E-tube cable length C-362



Model No.	E-tube cable length L (mm)
ST-9071	470
ST-6871	
SW-9071	620
SW-R671	
SW-R600	261
SW-R610	130
SW-S705	165

## SM-EWW01

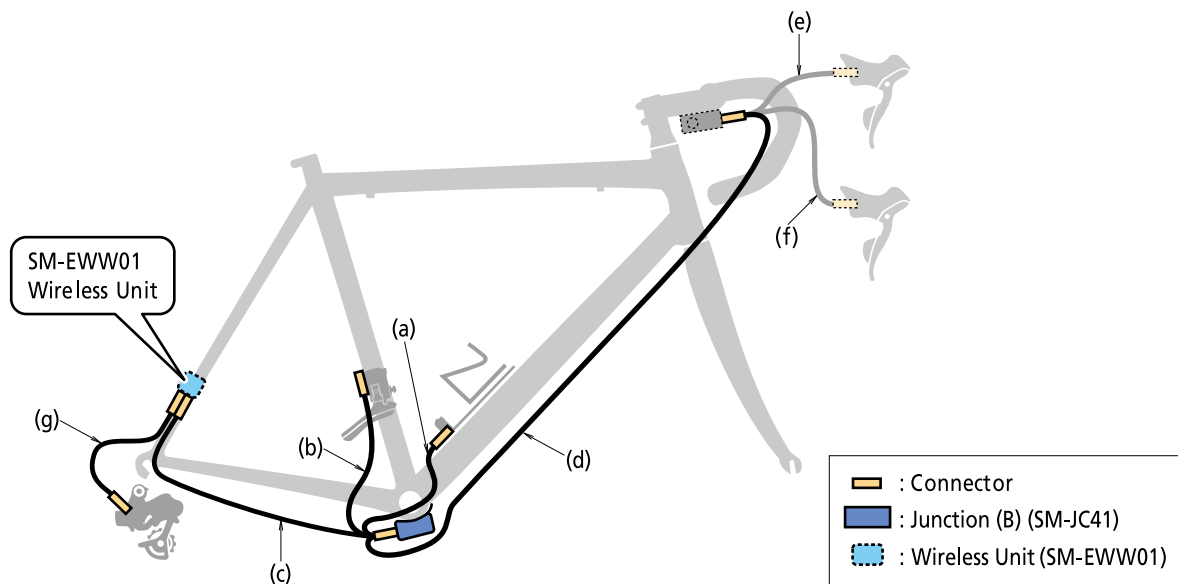
Firmware requirements for SM-EWW01.

SM-BMR1: Version 2.1.0

SM-BMR2: Version 2.3.0

SM-BTR2: Version 2.3.0

Need to upload the latest firmware to use this Wireless Unit.



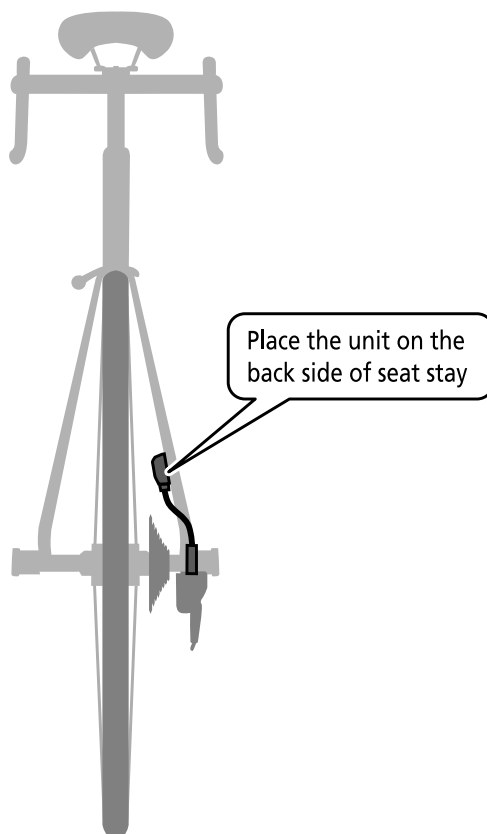
Each cable's maximum length

a)+ b) ≤ 900mm

a)+ c)+g) ≤ 1200mm

d) ≤ 1400mm

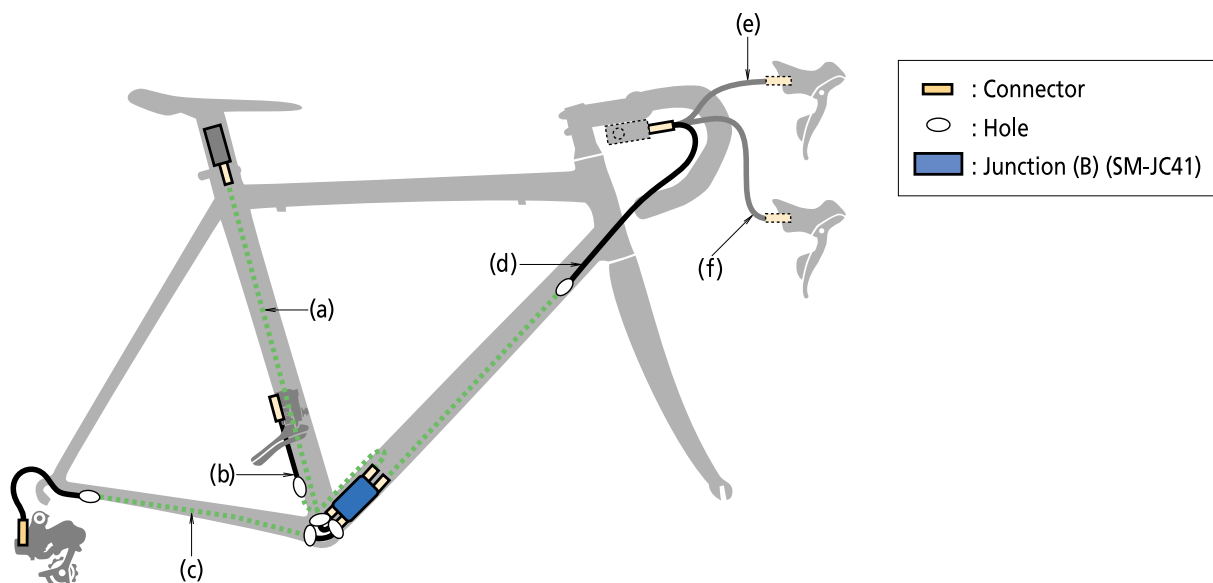
e),f) ≤ 500mm



# Electric wire routing

## DURA-ACE 9070 series

### Built-in battery mount type (built-in wire routing)



Each cable's maximum length

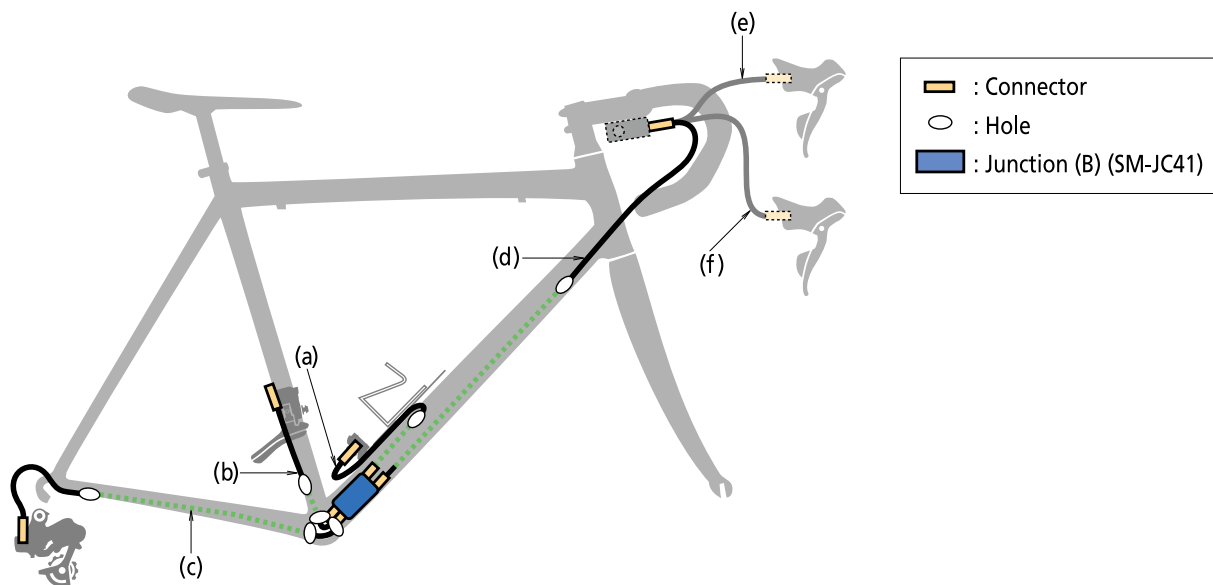
a) + b)  $\leq$  1500mm

a) + c)  $\leq$  1700mm

d)  $\leq$  1400mm

e) + f)  $\leq$  500mm

### External battery mount type (built-in wire routing)



Each cable's maximum length

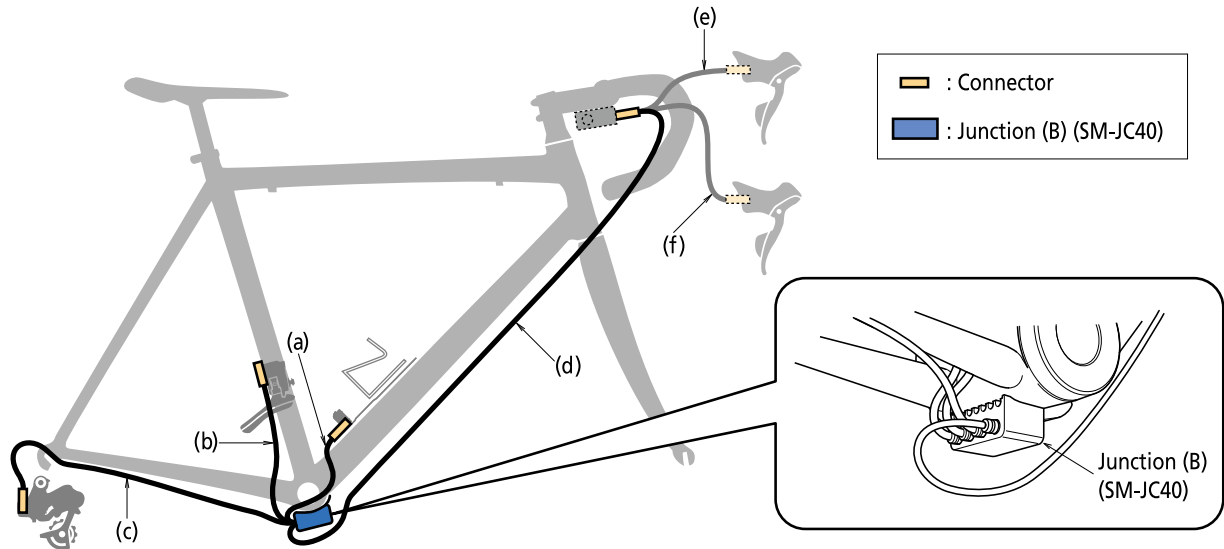
a) + b)  $\leq$  1500mm

a) + c)  $\leq$  1700mm

d)  $\leq$  1400mm

e) + f)  $\leq$  500mm

## External battery mount type (external wire routing)

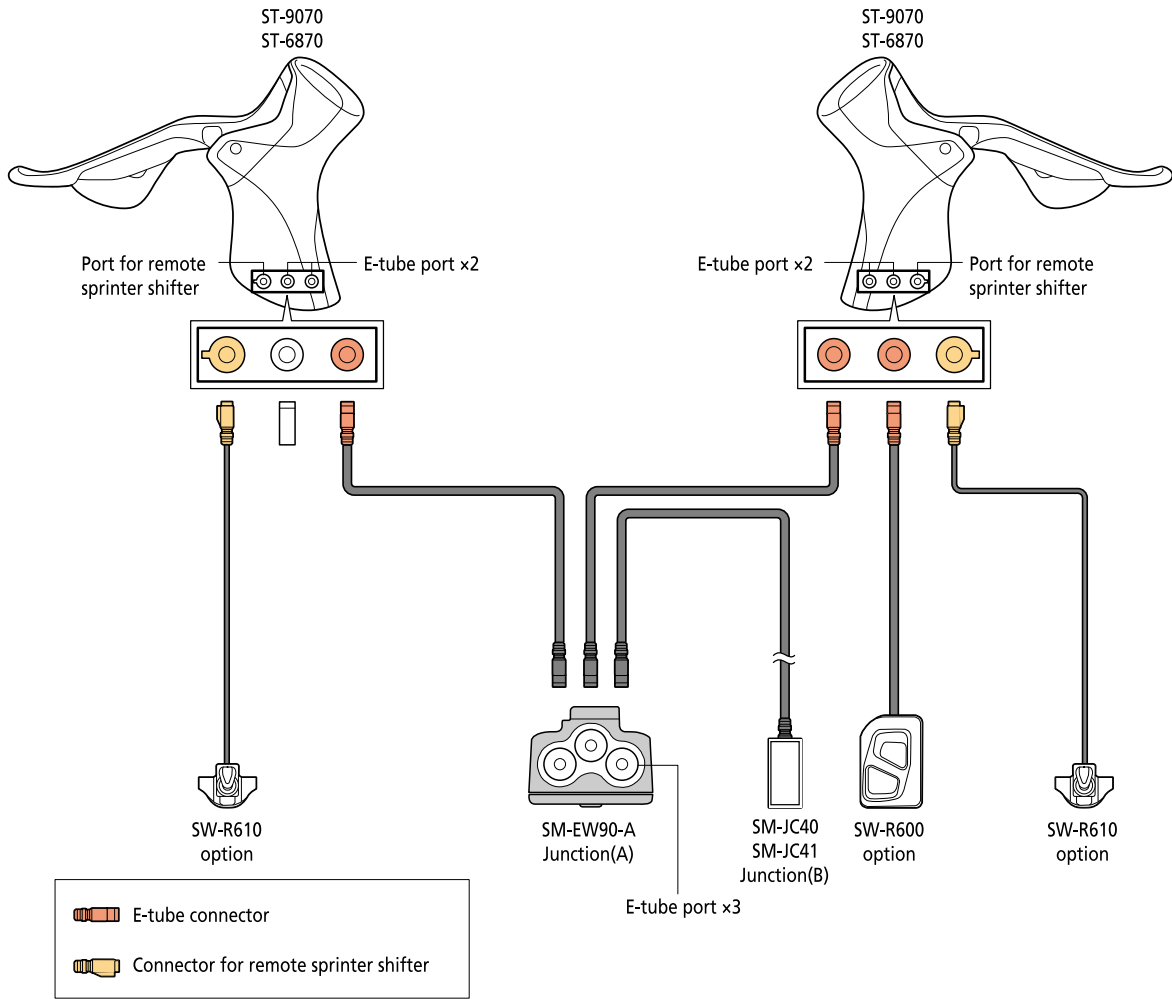


Each cable's maximum length  
a)+ b) ≤ 900mm  
a)+ c) ≤ 1100mm  
d) ≤ 1400mm  
e)+ f) ≤ 500mm

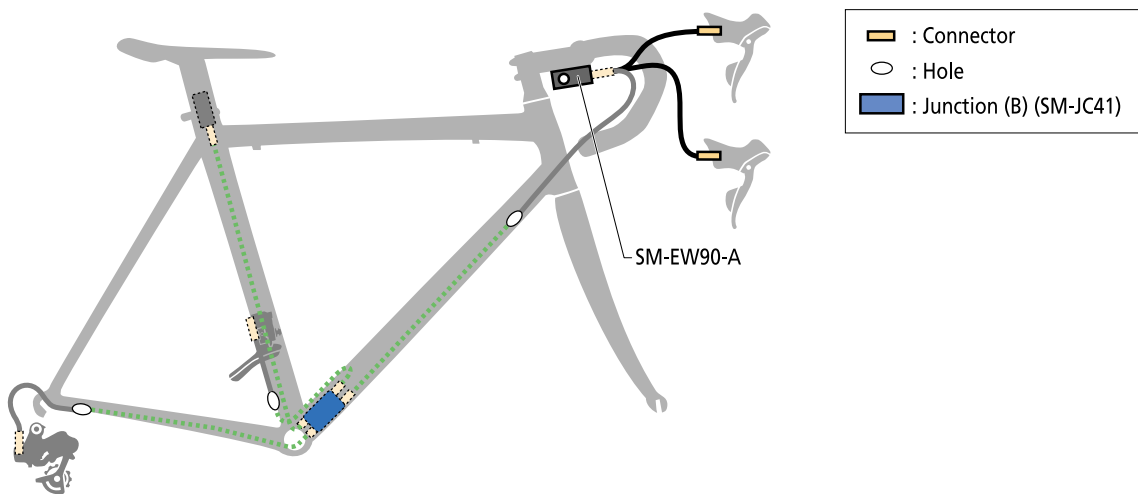
# Electric wire routing around cockpit area

## Drop handle type C-366

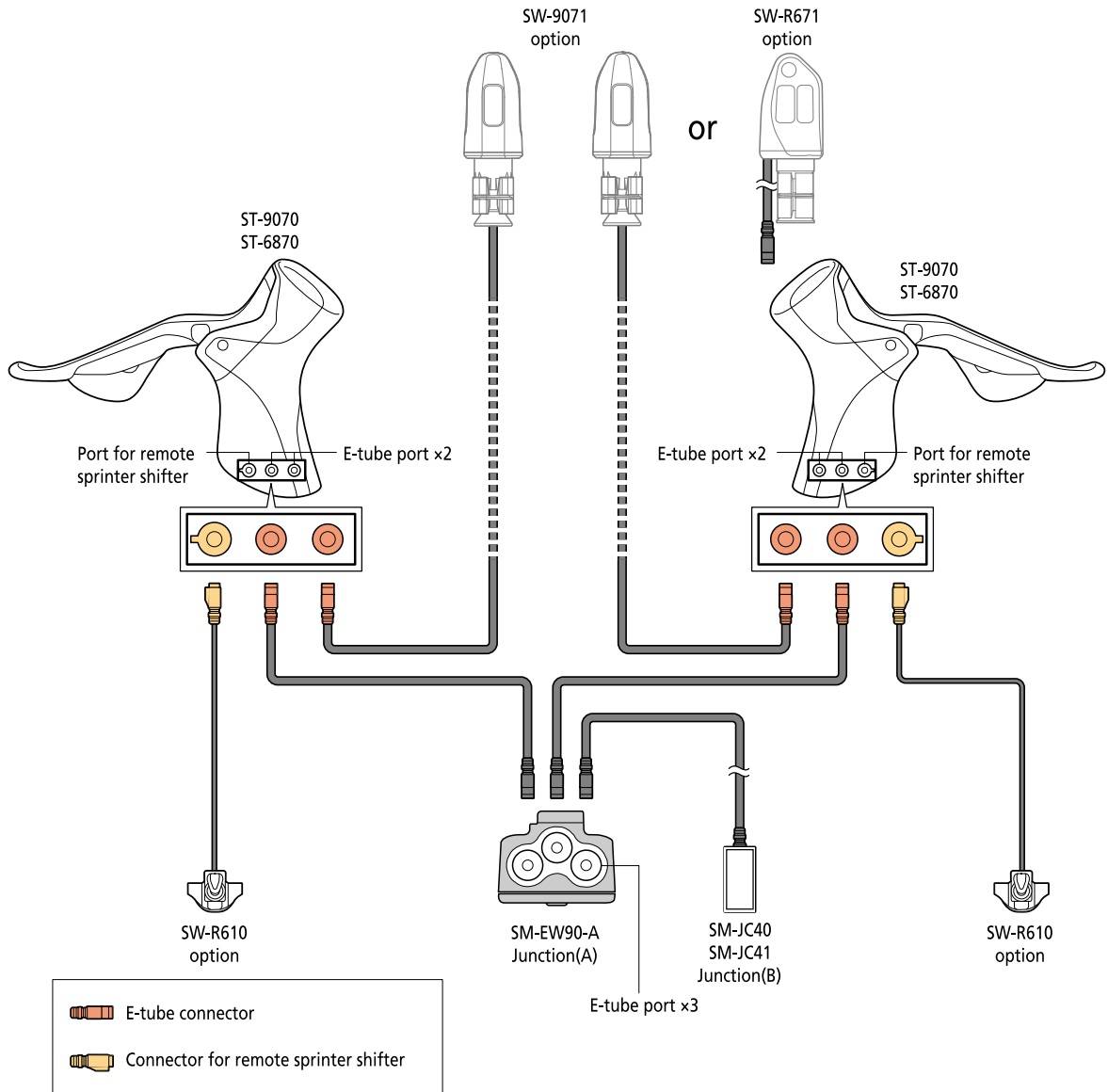
### 3 port type



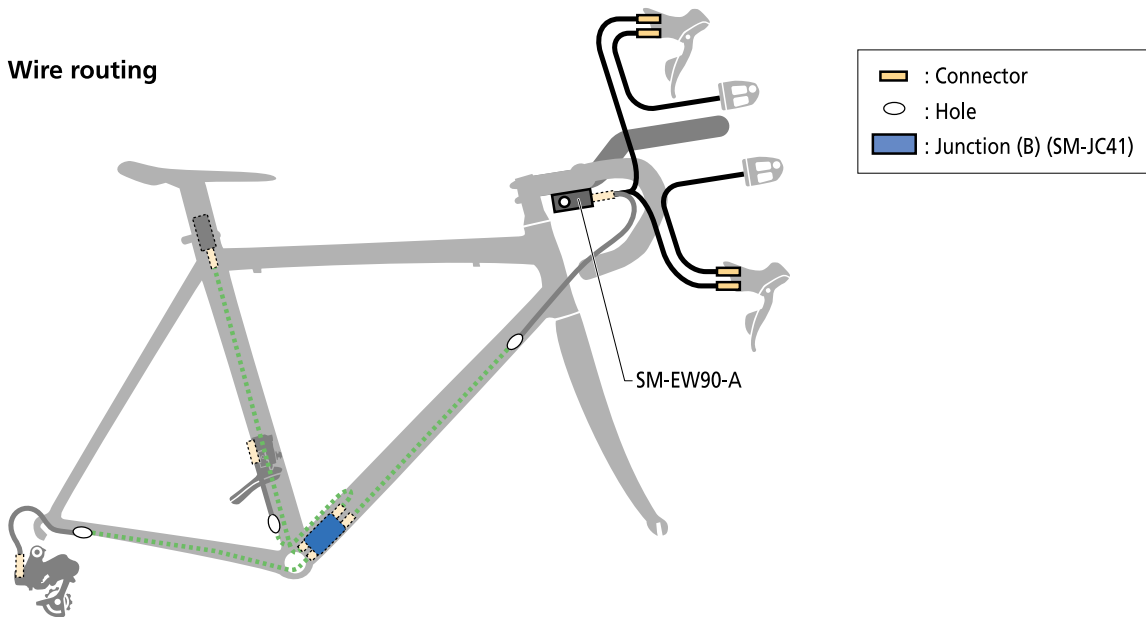
### Wire routing



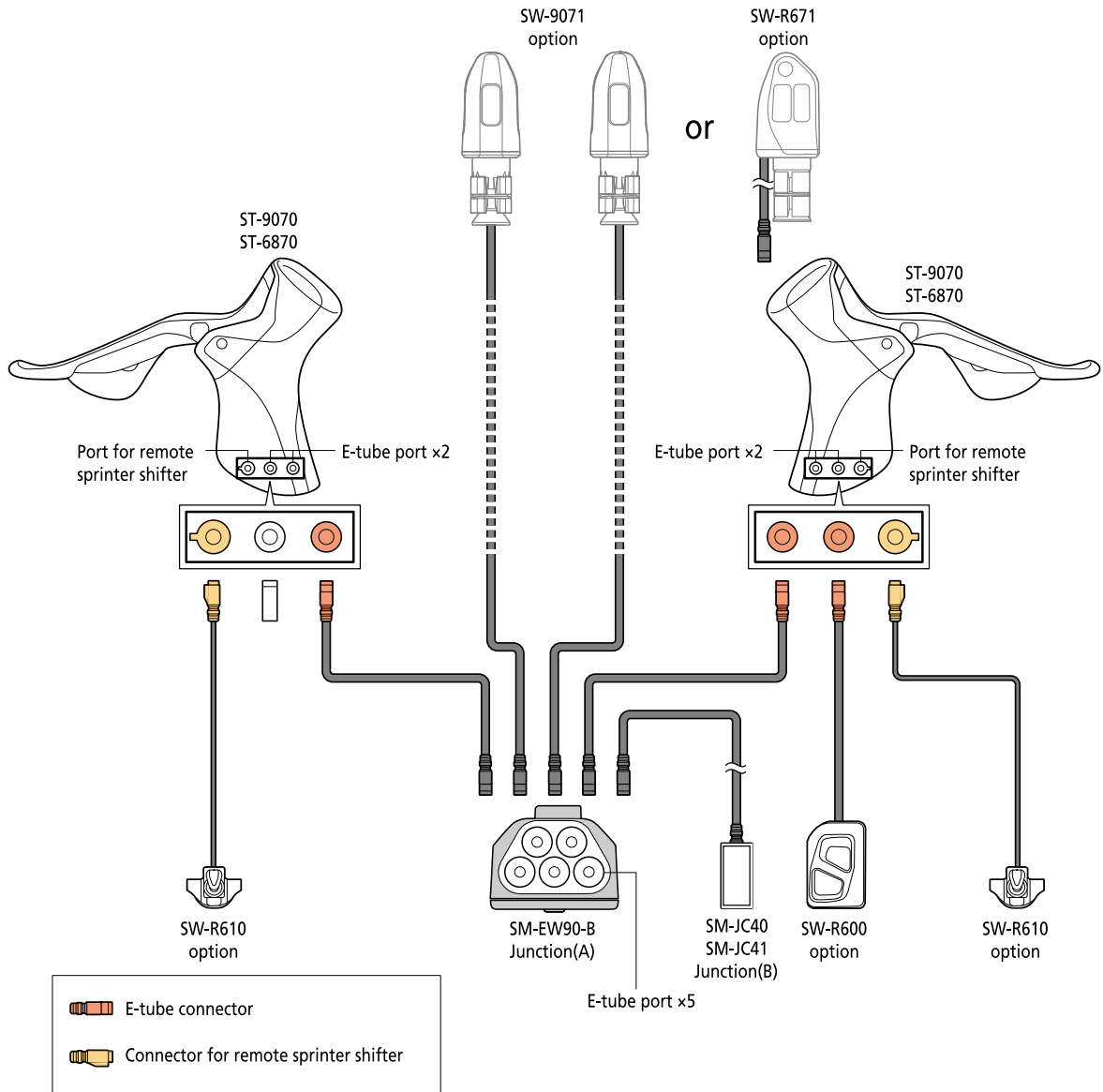
### 3 port type (with clip-on bar)



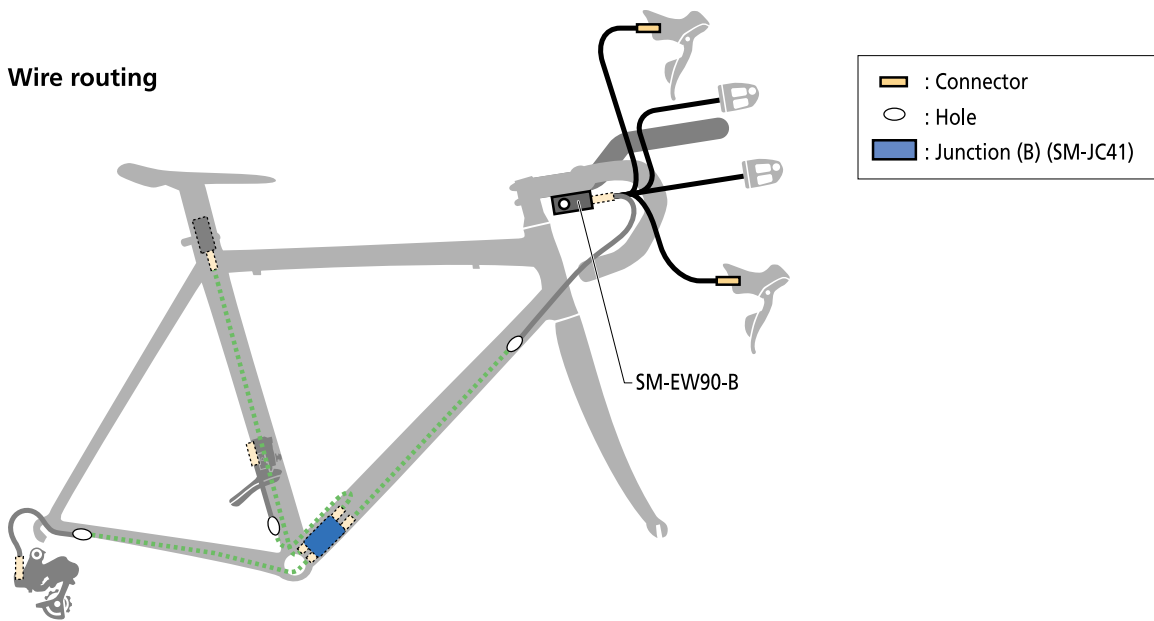
### Wire routing



# 5 port type (with clip-on bar)

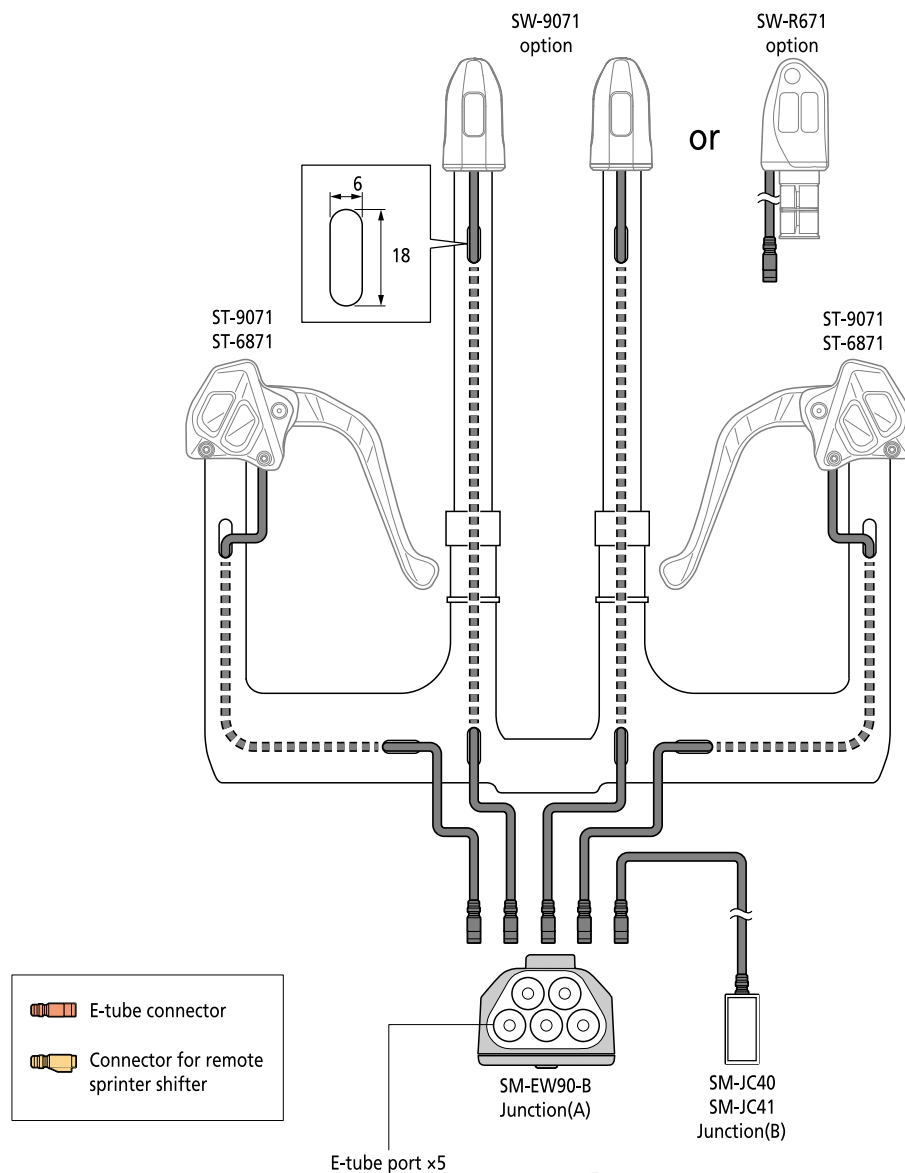


## Wire routing

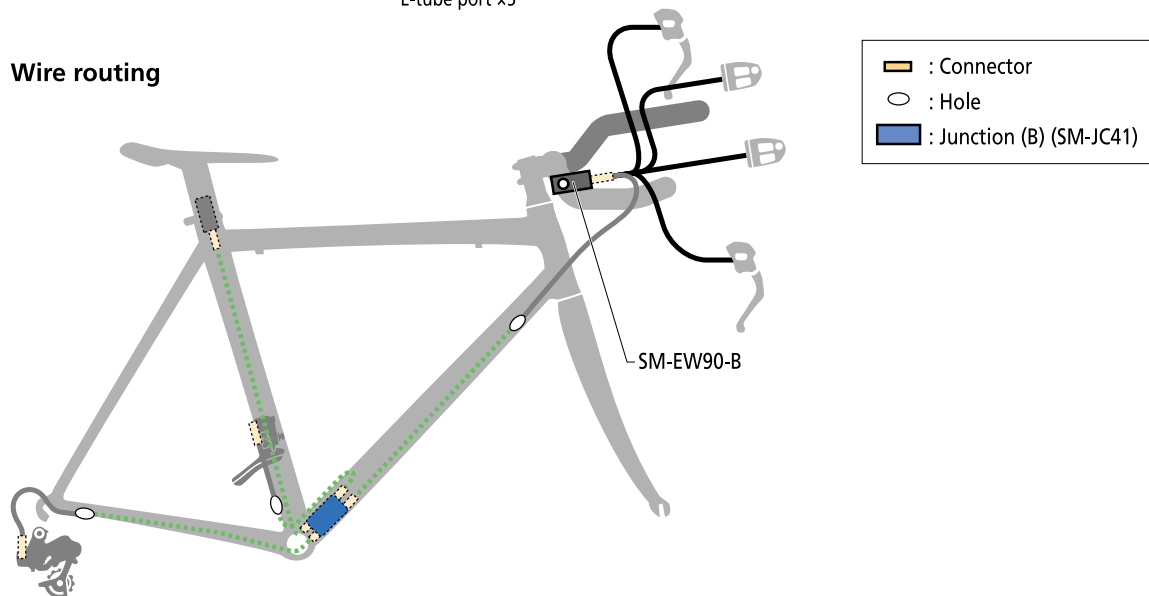


# TT / Triathlon handle type C-370

## 5 port type



### Wire routing

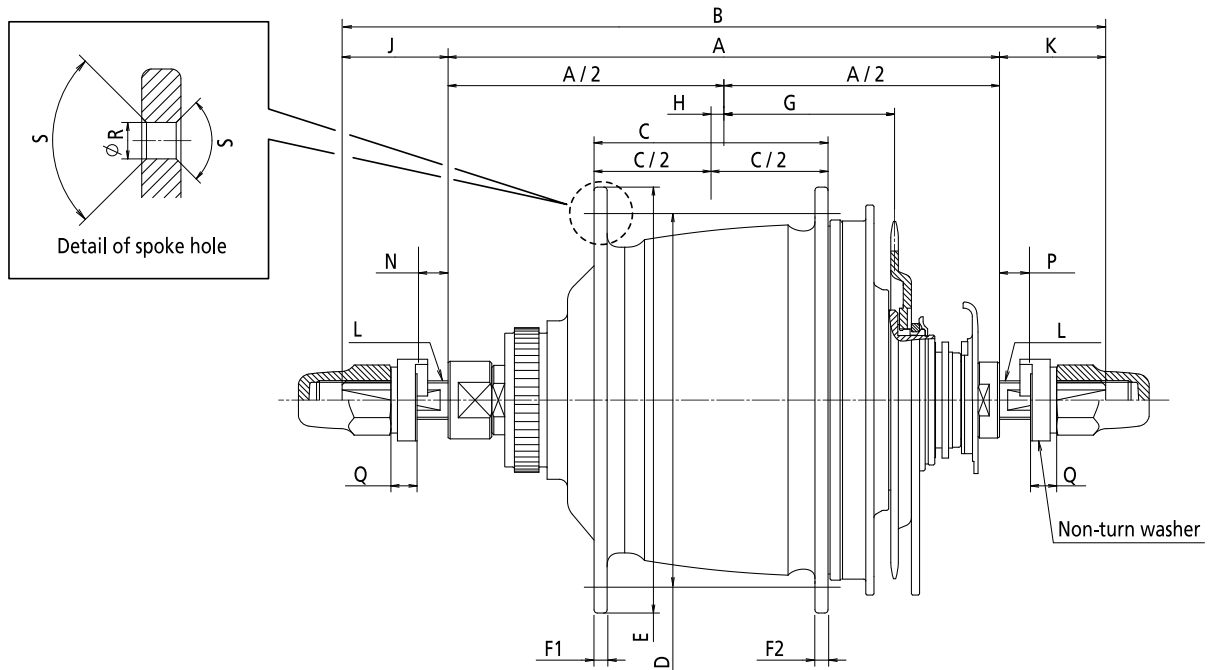


## Internal Geared Hub

C-373

### Dimensions C-374

SG-S705 / SG-S505



Series		ALFINE	ALFINE	NEXUS	
Function name		Inter-11	Inter-8	Inter-8	Inter-8
Model No.		SG-S705	SG-S505	SG-C6060-8R SG-C6060-8D	SG-C6060-8C SG-C6060-8D
Speed		11	8	8	8
Gear ratio	Total	409%	307%	307%	307%
	1	0.527	0.527	0.527	0.527
	2	0.681	0.644	0.644	0.644
	3	0.770	0.748	0.748	0.748
	4	0.878	0.851	0.851	0.851
	5	0.995	1	1	1
	6	1.134	1.223	1.223	1.223
	7	1.292	1.419	1.419	1.419
	8	1.462	1.615	1.615	1.615
	9	1.667	-	-	-
	10	1.888	-	-	-
11	2.153	-	-	-	
Spoke size		#13 / #14			
A	Over locknut dim. / O.L.D. (mm)	135	135	135	135
B	Axle length (mm)	187	187	187	187
C	Flange distance (mm)	57.3	57.3	58.3	57.3
D	Spoke hole P.C.D. (mm)	92.6	92.6	92.6	92.6
E	Flange diameter (mm)	104.3	104.3	105.2	105.2
F	Flange width (mm): F1 (left)	3.2	3.2	3.2	3.2
	Flange width (mm): F2 (right)	3.2	3.2	3.2	3.2
G	Chain line (mm): (inward assembly)	41.8	41.8	42.1	41.8
H	Dishing distance (mm)	3.15	3.15	3.1	3.7
J	Axle length from hub (left)	26	26	26	26
K	Axle length from hub (right)	26	26	26	26
L	Axle size	BC3 / 8 TPI 26			
N	Dropout width (left, includes stay etc.)	5-9	5-9	5-9	5-9
P	Dropout width (right, includes stay etc.)	5-9	5-9	5-9	5-9
Q	Non turn washer width	6.4	6.4	6.4	6.4
R	Spoke hole diameter (mm)	2.9	2.9	2.9	2.9
S	Spoke hole chamfer	90°	90°	90°	90°

## Spoke lacing C-375

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.

## Recommended gear ratio C-376

Series	Model No.	Speed	Sprocket ratio	Front			SM-GEAR										CS-S500*			
				Gear teeth	FC-S501	FC-C6000	Inward assembly**										Inward assembly**			
							14	15	16	17	18	19	20	21	22	23	18	20		
ALFINE	SG-S705	11S	1.8-2.0	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
				38	-	X	-	-	-	-	-	X	X	X	-	-	-	-	X	
				39	X	-	-	-	-	-	-	-	X	X	-	-	-	-	-	X
				42	X	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-
				44	-	-	-	-	-	-	-	-	-	-	X	X	-	-	-	-
	45	X	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-			
	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	38	-	X	-	-	-	-	X	X	-	-	-	-	-	-	-	X			
	39	X	-	-	-	-	-	X	X	-	-	-	-	-	-	-	X			
	42	X	-	-	-	-	-	-	X	X	X	-	-	-	-	-	X			
44	-	-	-	-	-	-	-	-	X	X	X	-	-	-	-	X				
45	X	-	-	-	-	-	-	-	X	X	X	-	-	-	-	X				
NEXUS	SG-C6060-8R SG-C6060-8V SG-C6060-8D	8S	2.0-2.2	33	-	X	-	-	X	-	-	-	-	-	-	-	-	-		
				38	-	X	-	-	-	-	X	X	-	-	-	-	-	-	X	
				39	X	-	-	-	-	-	X	X	-	-	-	-	-	-	X	
				42	X	-	-	-	-	-	-	X	X	X	-	-	-	-	X	
				44	-	-	-	-	-	-	-	-	X	X	X	-	-	-	X	
	45	X	-	-	-	-	-	-	-	-	X	X	-	-	-	-				
	33	-	X	-	-	X	-	-	-	-	-	-	-	-	-	-	-			
	38	-	X	-	-	-	-	X	X	-	-	-	-	-	-	-	X			
	39	X	-	-	-	-	-	X	X	-	-	-	-	-	-	-	X			
	42	X	-	-	-	-	-	-	X	X	X	-	-	-	-	-	X			
44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
45	X	-	-	-	-	-	-	-	-	-	X	X	-	-	-	-				

# Dust cap information and sprocket interchangeability C-377

Series	Speed	Model No.	Hub body (dust cap XX)	Right hand dust cap variation	SM-GEAR									
					Inward assembly									
					14	15	16	17	18	19	20	21	22	23
ALFINE	11	SG-S705	Right hand dust cap A w / Seal for SGS700	Right hand dust cap D	-	-	-	-	-	-	X	X	X	X
	8	SG-S505	Right hand dust cap A w / Seal for SGS501	Right hand dust cap B for INTER-8	-	-	-	-	X	X	X	X	X	X
Nexus	8	SG-C6060	Right hand dust cap A (Y-34R98110)	Right hand dust cap B for INTER-8	-	-	X	-	X	X	X	X	X	X

Series	Speed	Model No.	Hub body (dust cap XX)	Right hand dust cap variation	Outward assembly									
					14	15	16	17	18	19	20	21	22	23
					ALFINE	11	SG-S705	Right hand dust cap A w / Seal for SGS700	Right hand dust cap D	-	-	-	-	-
8	SG-S505	Right hand dust cap A w / Seal for SGS501	Right hand dust cap B for INTER-8	-		-	-	-	-	-	-	-	-	-
Nexus	8	SG-C6060	Right hand dust cap A (Y-34R98110)	Right hand dust cap B for INTER-8	-	-	-	-	-	-	-	-	-	-

Series	Speed	Model No.	Hub body (dust cap XX)	Right hand dust cap variation	CS-5500*				Sealing performance
					In ward		Out ward		
					18	20	18	20	
ALFINE	11	SG-S705	Right hand dust cap A w / Seal for SGS700	Right hand dust cap D	-	X	-	-	2.9
	8	SG-S505	Right hand dust cap A w / Seal for SGS501	Right hand dust cap B for INTER-8	X	X	-	-	1.0
Nexus	8	SG-C6060	Right hand dust cap A (Y-34R98110)	Right hand dust cap B for INTER-8	X	X	-	-	1.0

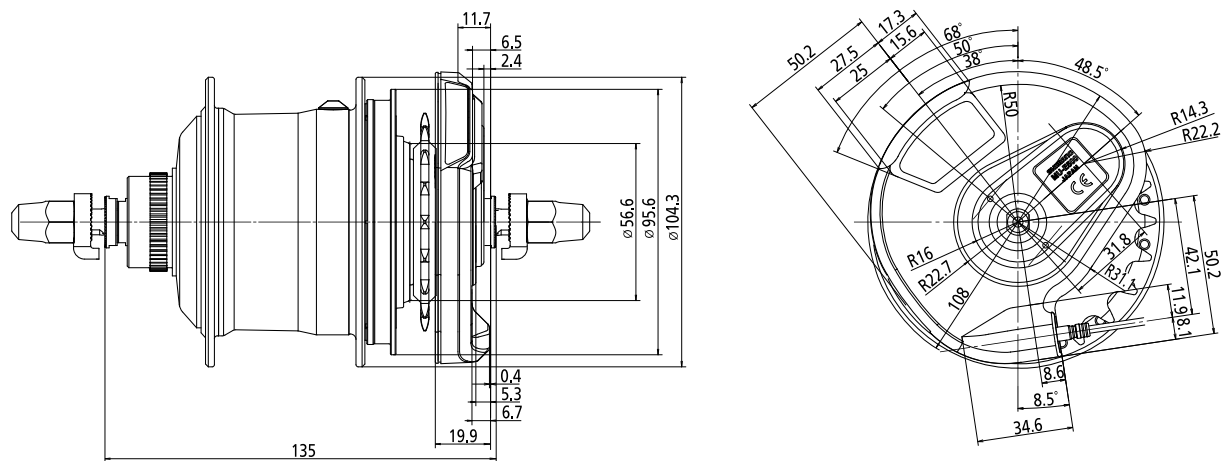
\* Only spec. without guard can be used

X: Yes

## Motor unit (MU-S705)

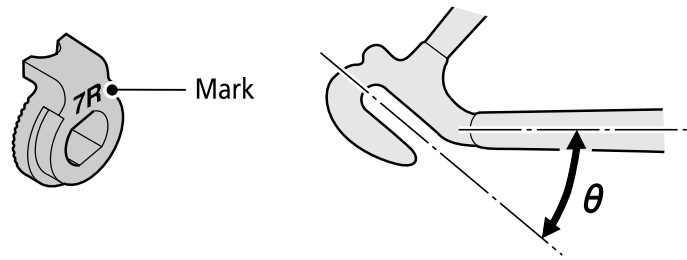
C-378

### Dimensions C-379



## Non-turn washer C-380

Use whichever non-turn washers match the shape of the dropouts. Different non-turn washers are used at the left and right sides.



- \*The projecting parts should be on the dropouts side.
- \*Install the non-turn washers so that the projecting parts are securely in the dropout grooves on either side of the hub axle.

## Shape and colour C-381

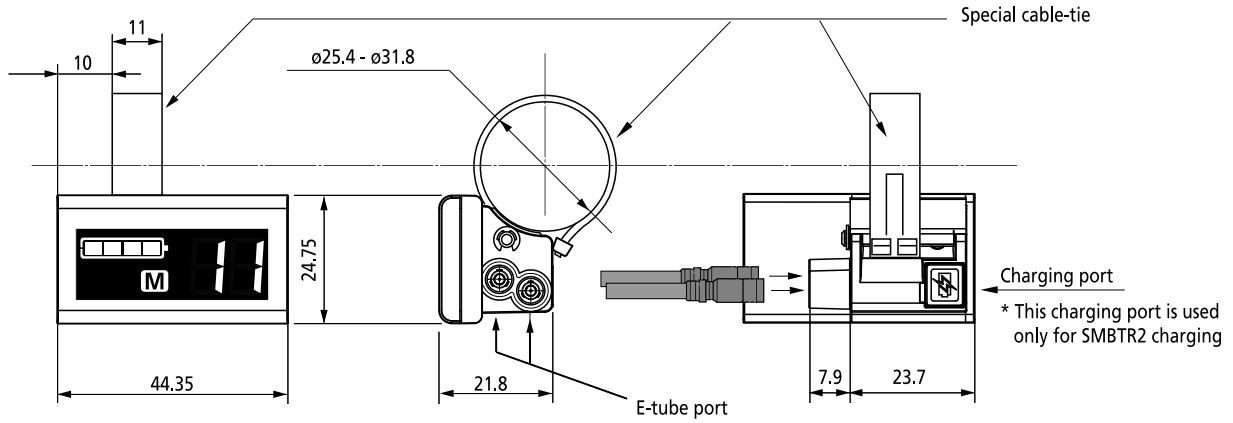
	For right hand side	For left hand side
5R 5L	<p>99°</p> <p>5R: Yellow</p>	<p>267°</p> <p>5L: Brown</p>
6R 6L	<p>110°</p> <p>6R: Silver</p>	<p>250°</p> <p>6L: White</p>
7R 7L	<p>77°</p> <p>7R: Black</p>	<p>283°</p> <p>7L: Gray</p>
8R 8L	<p>30°40'</p> <p>8R: Dark blue</p>	<p>329°20'</p> <p>8L: Dark green</p>

# Application chart C-382

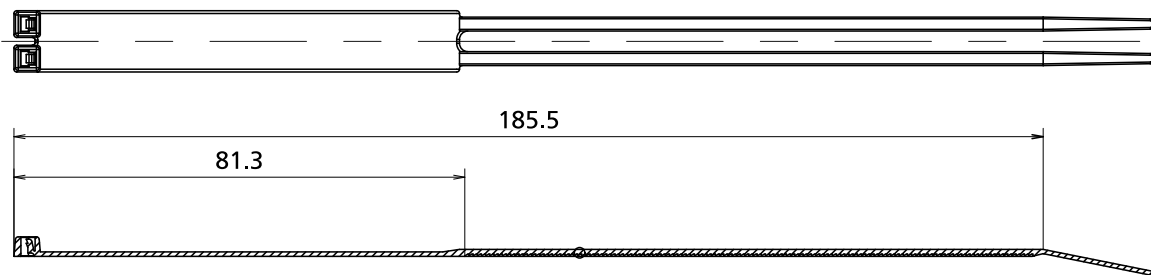
	Reversed dropout	Standard dropout	
5R 5L			
6R 6L			
7R 7L			

	Vertical	
8R 8L		

## Dimensions C-384

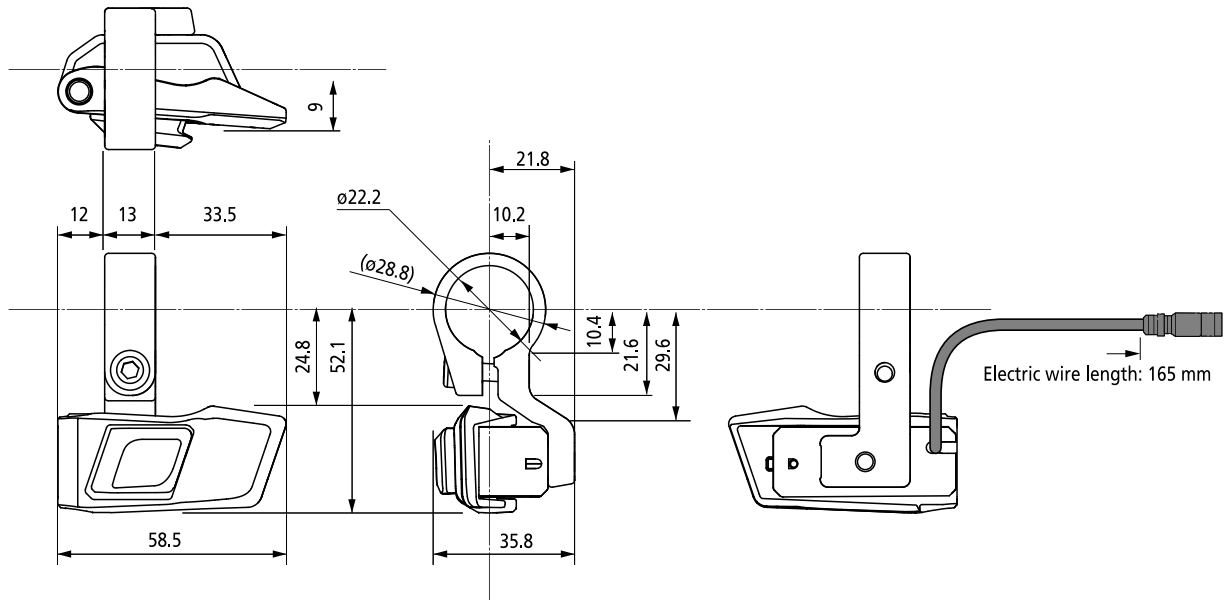


## Dimensions of special cable tie for SC assembly C-385



## Switch for flat handle bar use (SW-S705)

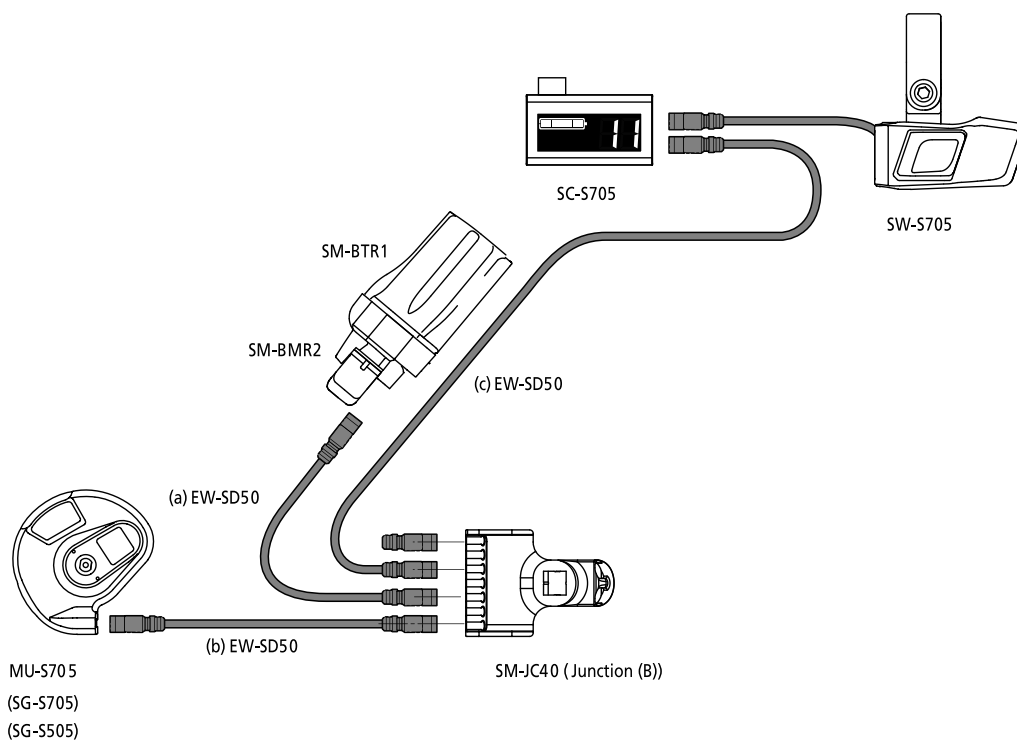
## Dimensions C-387



# Electric wire routing

## External wire routing C-389

### Flat handle bar use

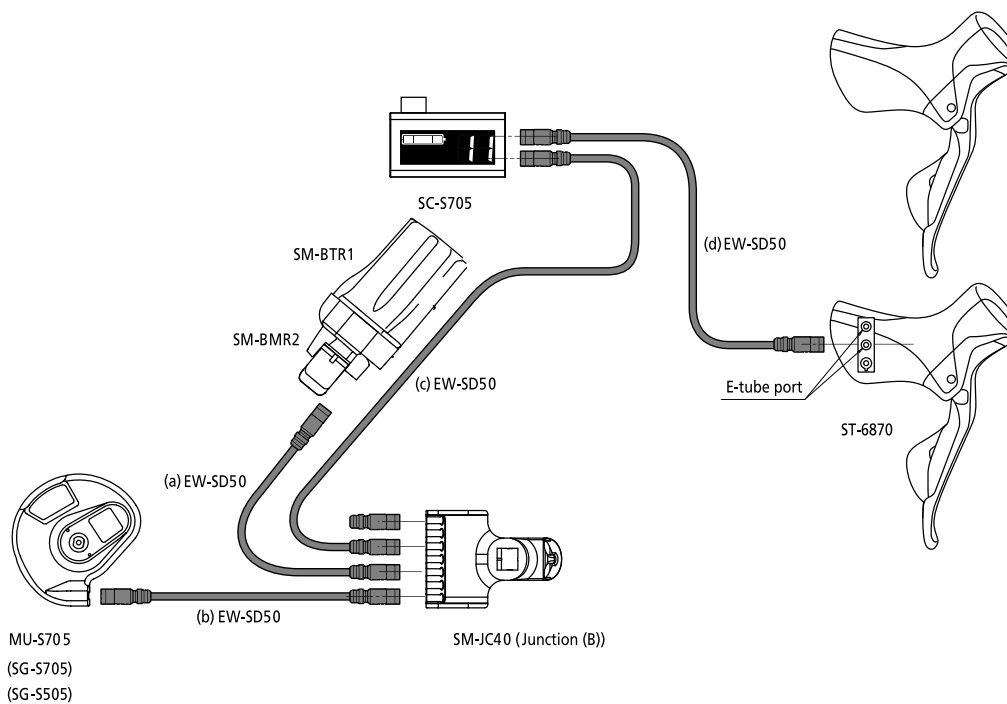


Each cable's maximum length

a) + b)  $\leq$  1500mm

c)  $\leq$  1400mm

### Drop handle bar use



Each cable's maximum length

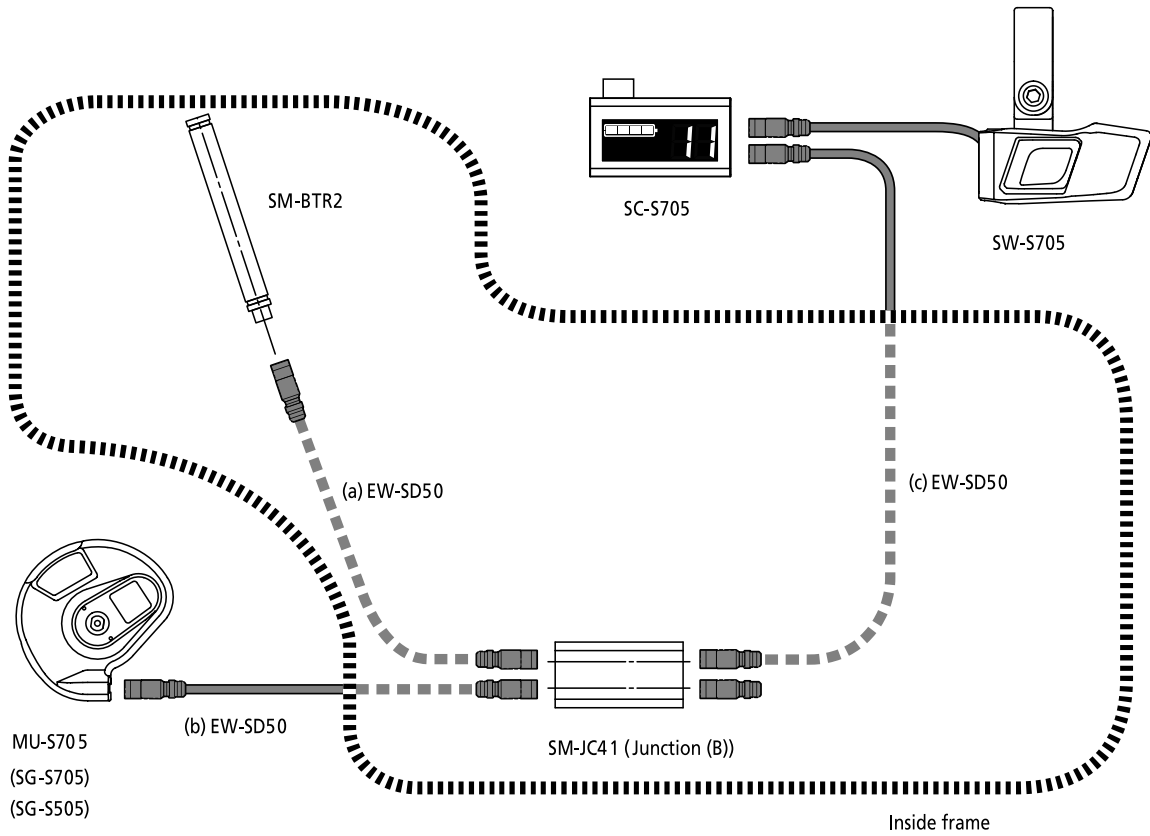
a) + b)  $\leq$  1500mm

c)  $\leq$  1400mm

d)  $\leq$  500mm

# Built-in battery mount type C-390

## Flat handle bar use

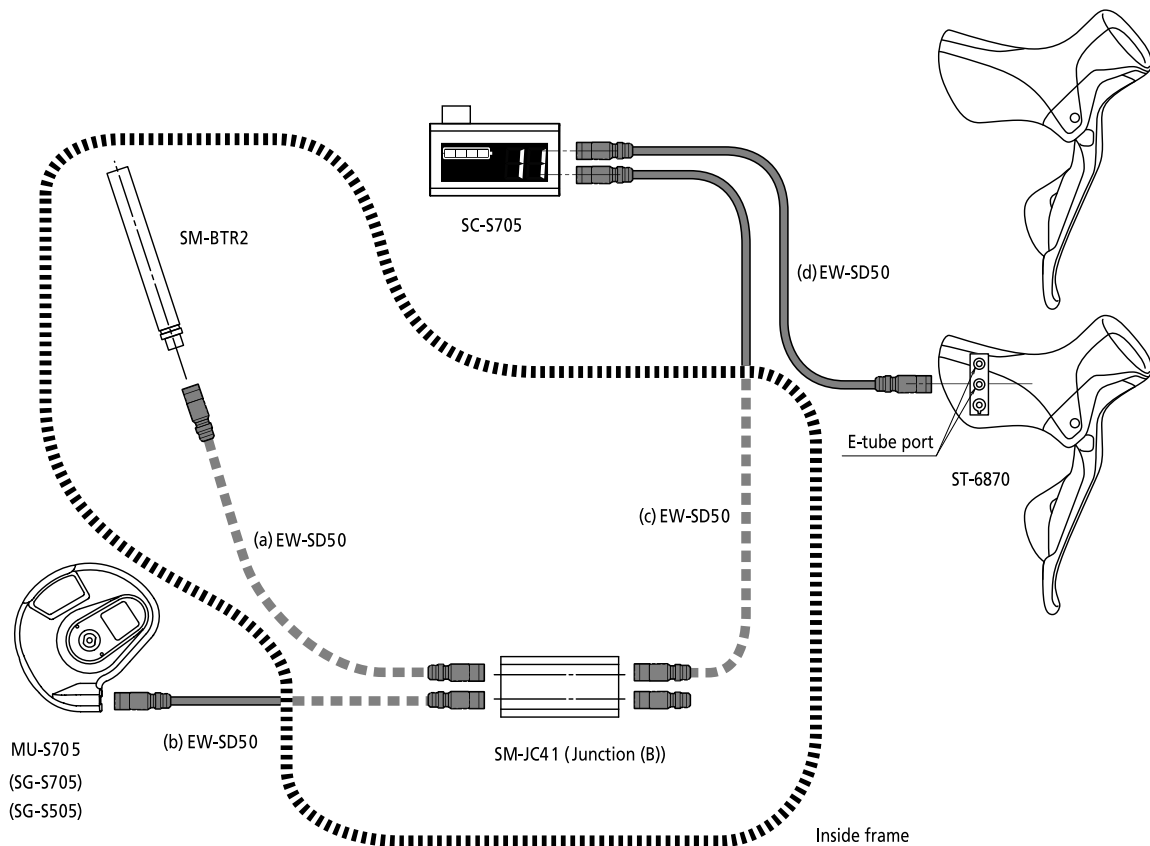


Each cable's maximum length

a) + b) ≤ 1600mm

c) ≤ 1400mm

## Drop handle bar use



Each cable's maximum length

a) + b) ≤ 1600mm

c) ≤ 1400mm

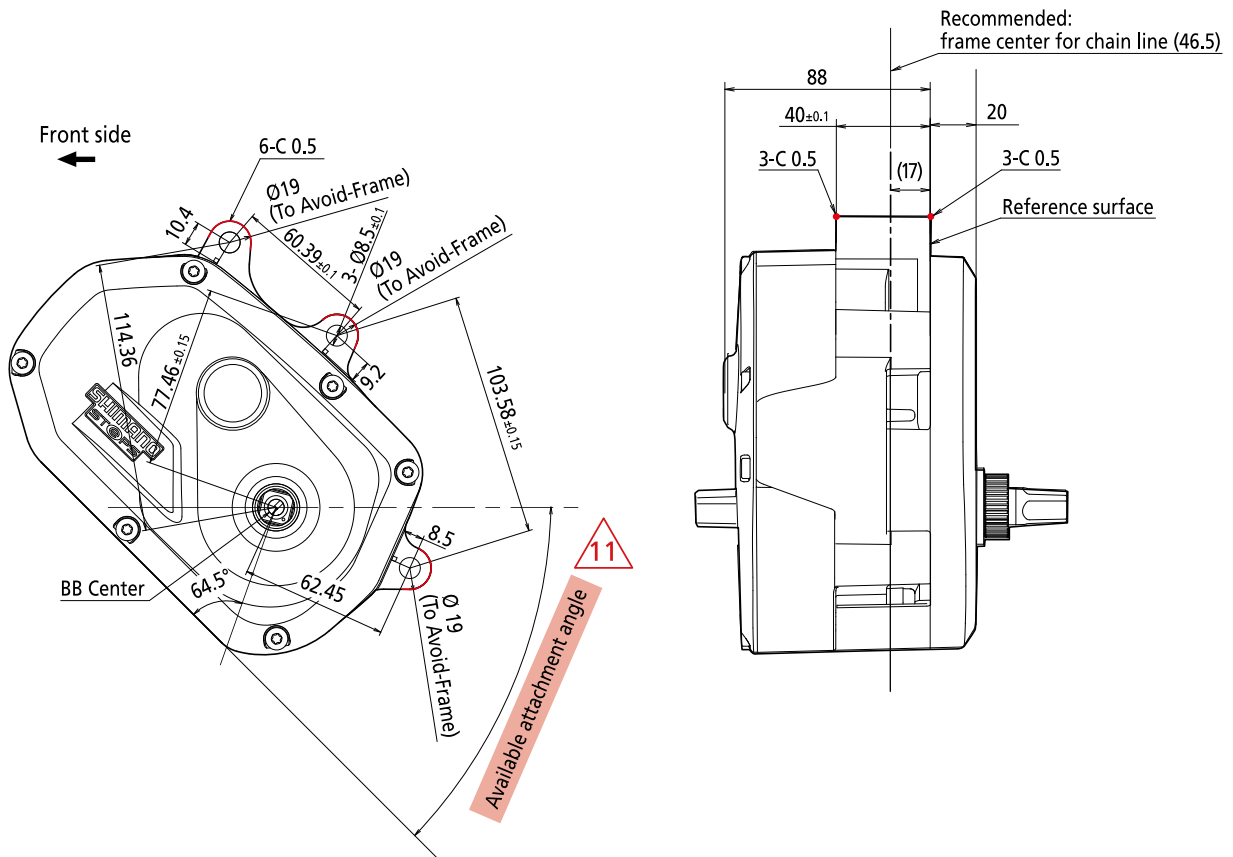
d) ≤ 500mm

## Drive unit dimensions

C-393

[DU-E6050](#) / [DU-E6010](#) / [DU-E6001](#) / [SM-DUE60](#)


[DU-E6050](#) / [DU-E6010](#) / [DU-E6001](#) do not include fixing bolts for frame

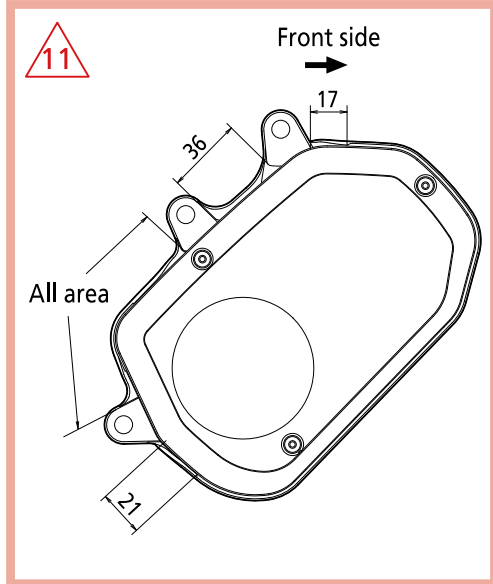
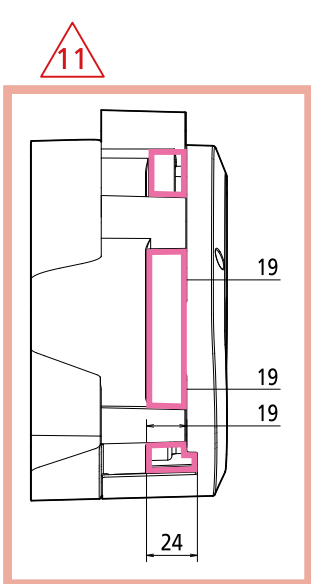
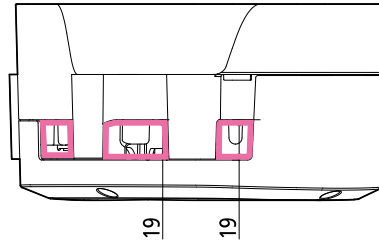


**11**  
 Available attachment angle  
 Internal geared hub type 0~60°  
 Rear derailleur type 0~60°


# Clearance for cables

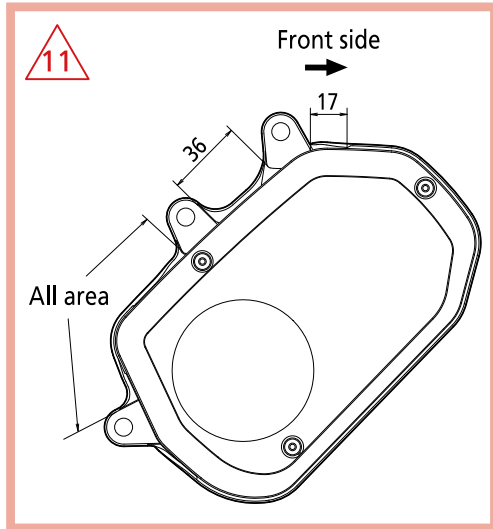
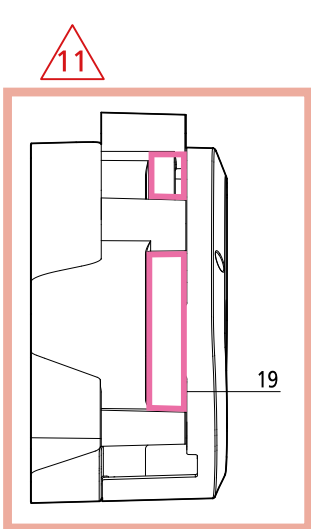
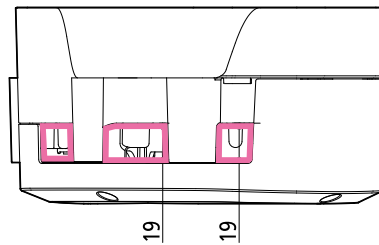
## SM-DUE60 (Drive Unit Cover)


 :Opening section

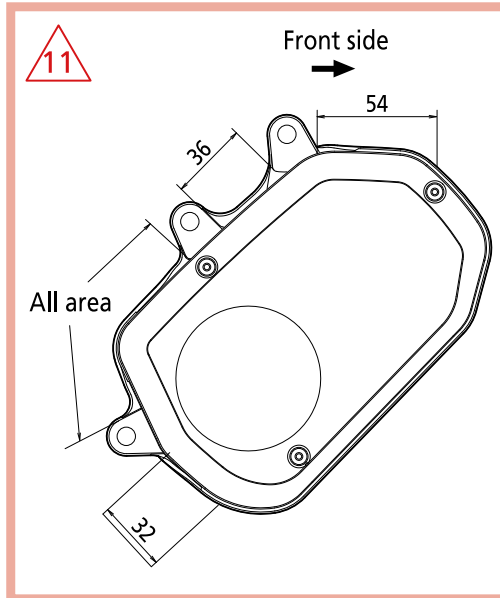
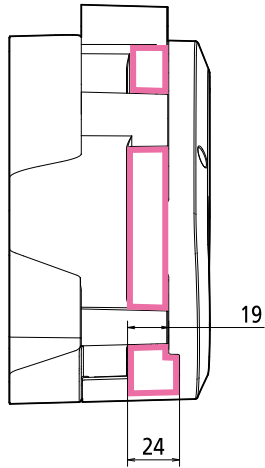
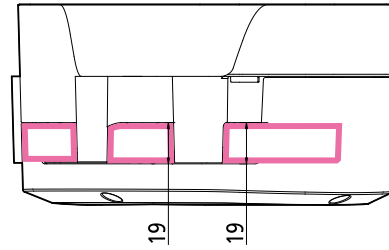


## SM-DUE60-A


 :Opening section

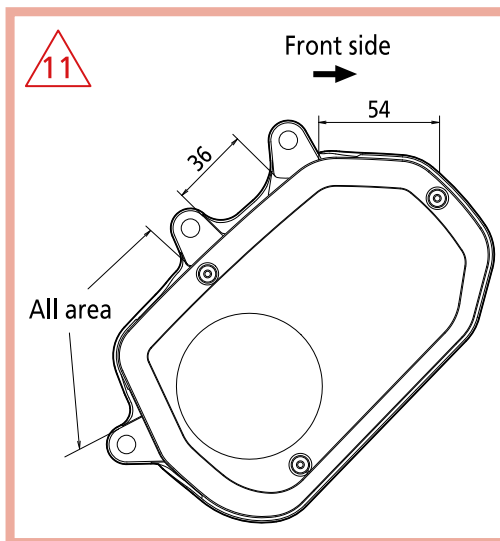
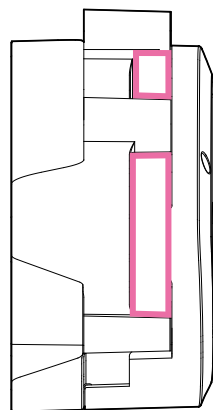
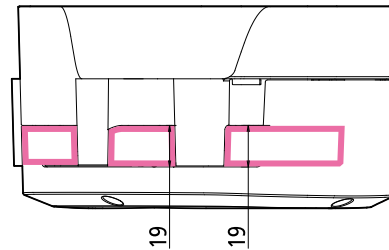


 :Opening section

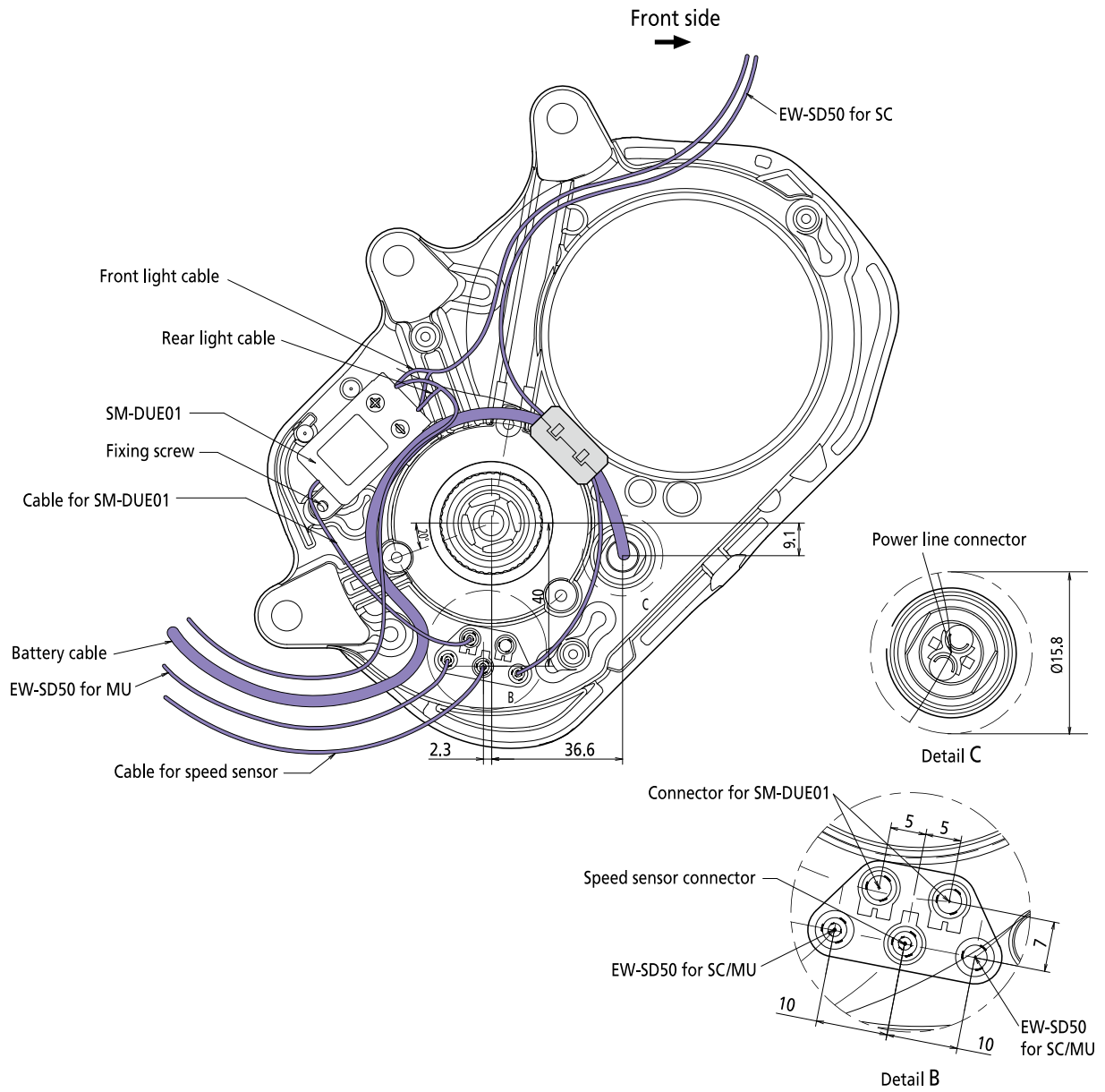


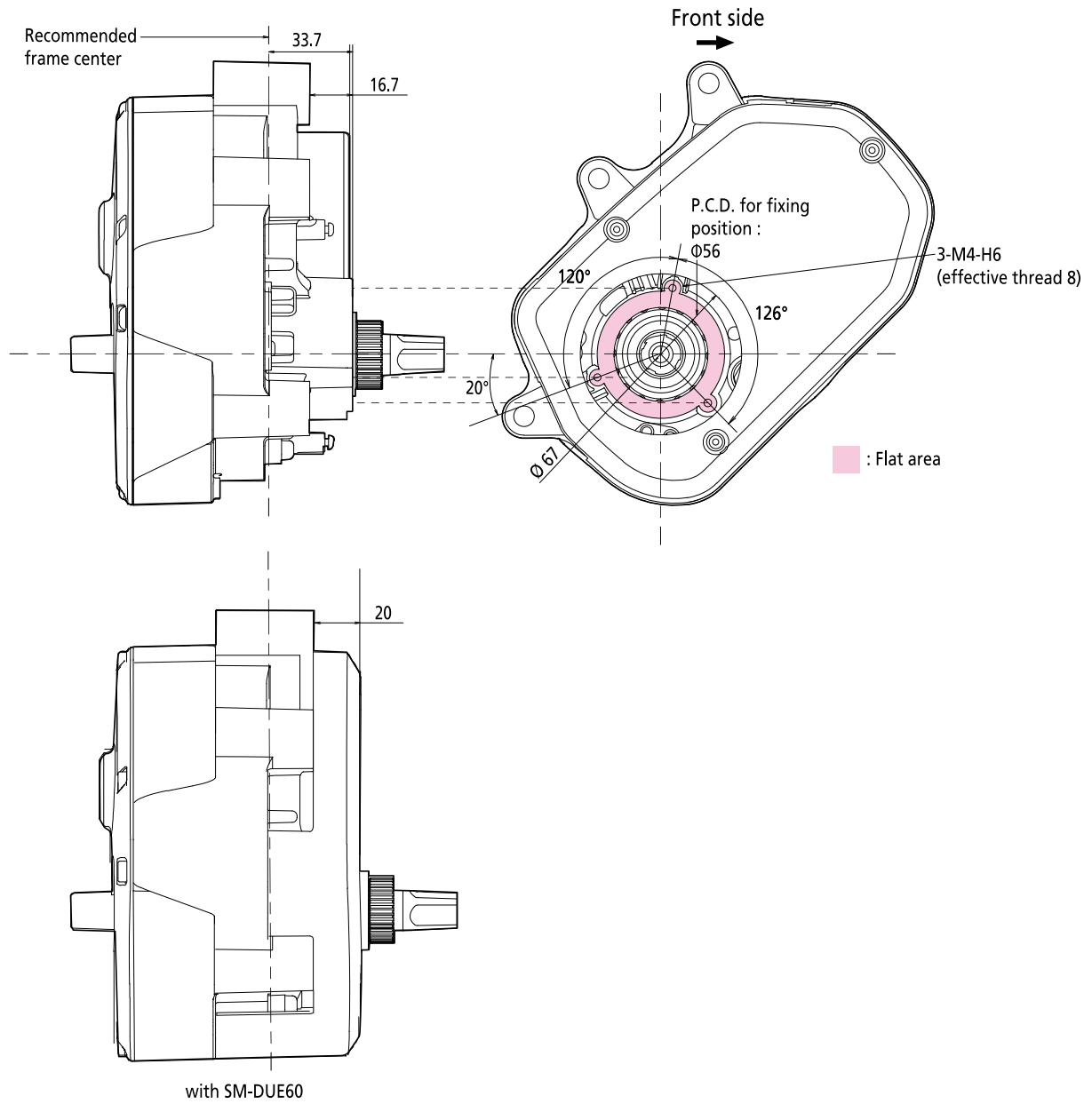
 **SM-DUE60-45A**

 :Opening section



In case of assembly angle 45°

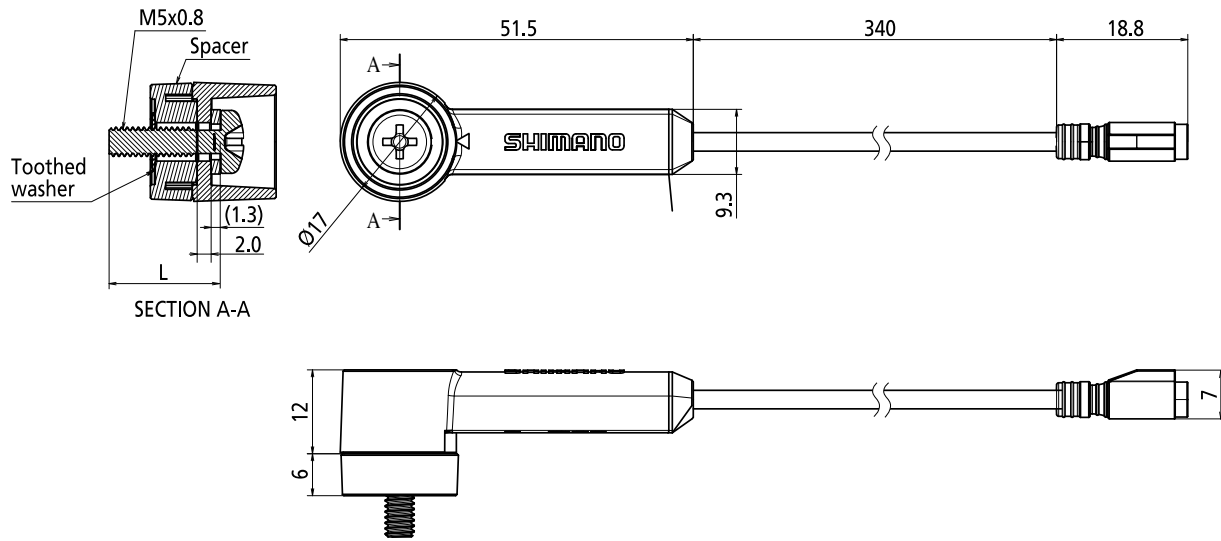




## Speed sensor dimensions

C-397

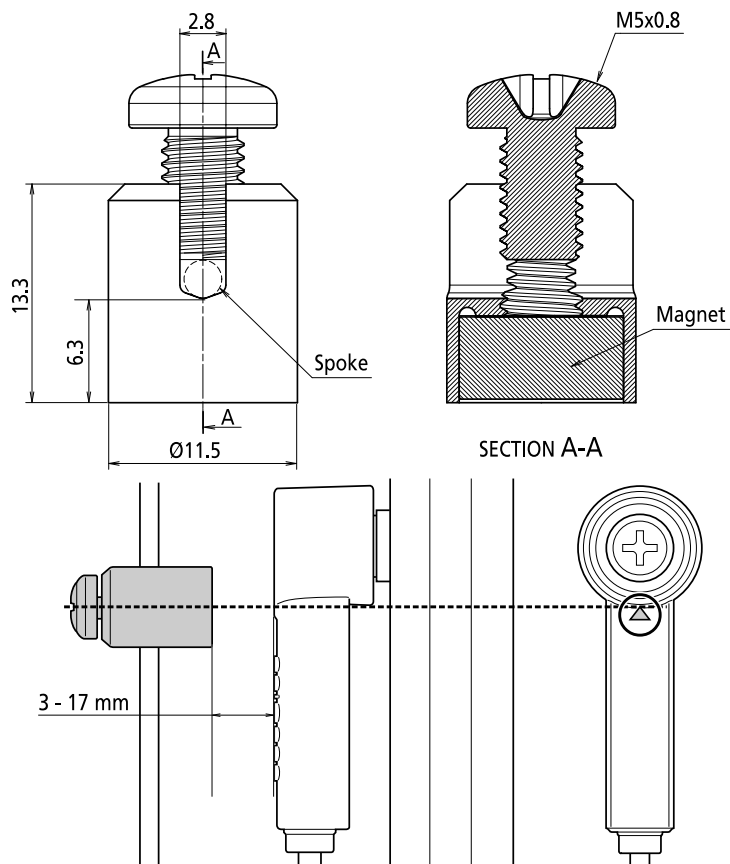
Drive unit includes speed sensor with fixing bolts, a spacer and magnet unit.



	Fixing bolt length L (mm)
Without spacer spec.	16
With spacer spec.	22

## Magnet for speed sensor

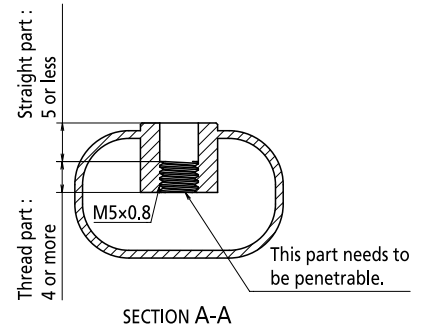
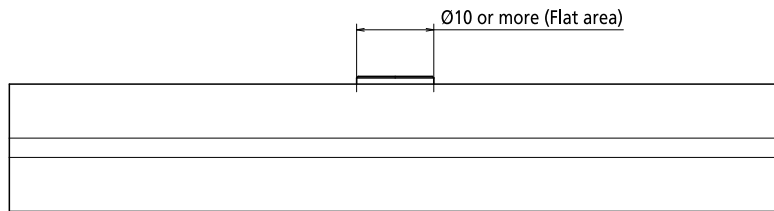
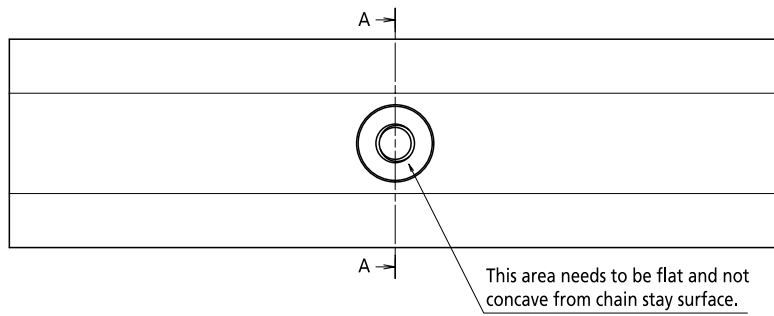
C-398



# Frame requirement for chainstay

Distance between speed sensor and magnet should be 3-17 mm

"Our expected tightening torque for this speed sensor is 1.5-2.0Nm. Design frame based on it"



## Electrical Specifications for lights

C-402

- supply voltage: DC 6V ( $\pm 0.5V$ )
- supply current: MAX 1000mA

(requirement for lights)

- Current consumption of lights should be less than 1000mA in total including front & rear lights
- DO NOT connect [DU-E6050](#), [DU-E6010](#) and DU-E6001 with
  - any light which has a stand/parking light function
  - any light which has an LED driver (switching converter type)
  - any light which doesn't meet EMC directive for CE marking

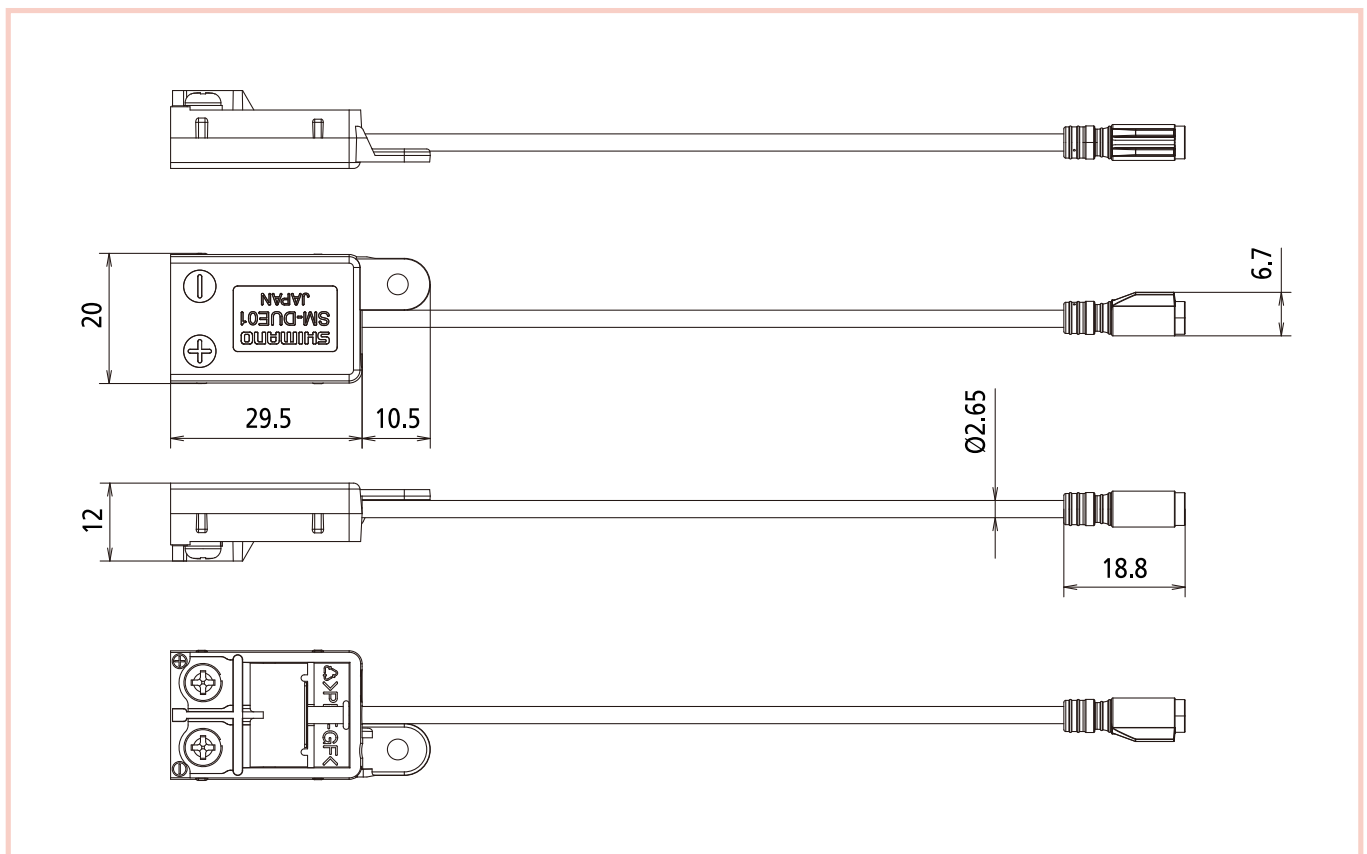
## Adapter for light

C-403

### Dimensions C-404

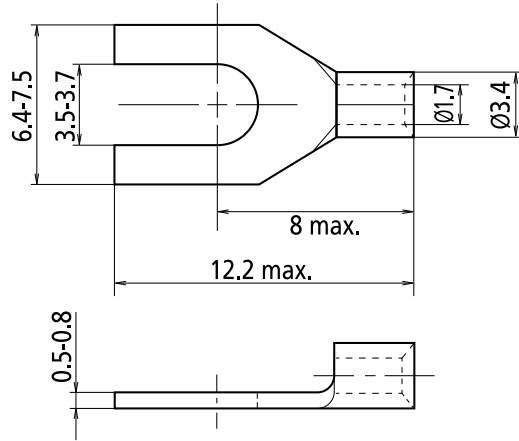
SM-DUE01 includes a M3 bolt for fixing to drive unit

**SM-DUE01**



# Recommended terminal form dimensions C-405

In case of using terminal

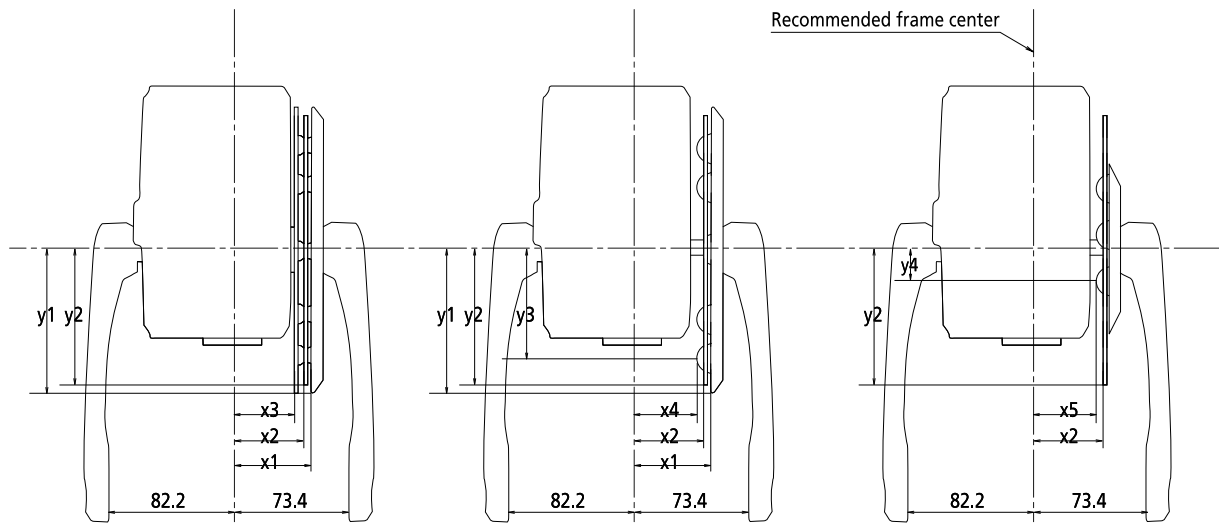


## Dimensions

C-401

### FC-E6000 / SM-CRE60

Dimension "X" is based on case of chain line : 46.5mm



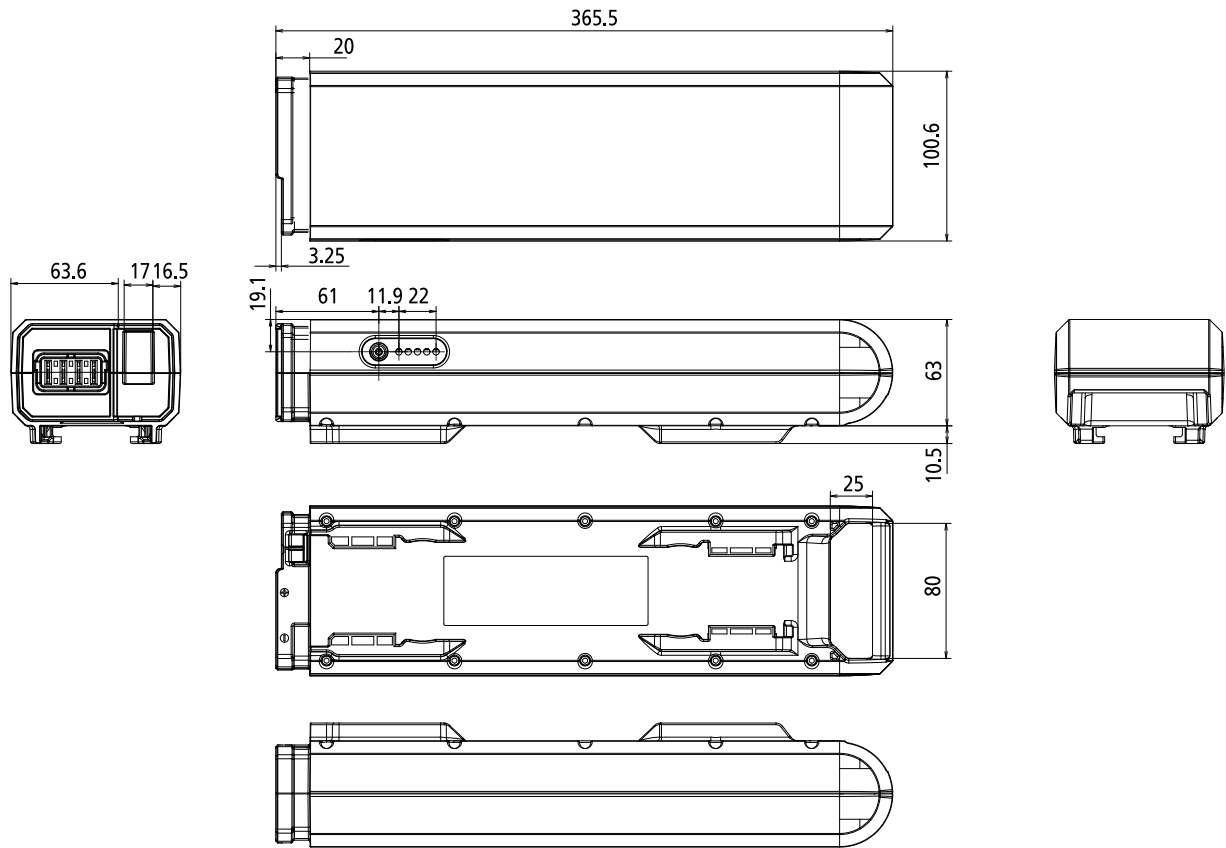
Crank arm	Gear	CG	x1(mm)	x2(mm)	x3(mm)	x4(mm)	x5(mm)	y1(mm)	y2(mm)	y3(mm)	y4(mm)
FC-E6000	44T (SM-CRE60)	w/ Double	51	44.2	38.5	-	-	98.6	95	76.6	-
		w/ Single	51	44.2	-	41.7	-	98.6	95	76.6	-
		w/o	-	44.2	-	-	41.7	-	95	-	38
	38T (SM-CRE60)	w/ Double	51	44.2	38.5	-	-	85.4	83.8	67.7	-
		w/ Single	51	44.2	-	41.7	-	85.4	83.8	67.7	-
		w/o	-	44.2	-	-	41.7	-	83.8	-	38
44T (SM-CRE60-11)	w/ Double	50.8	44.2	38.4	-	-	98.6	95	76.6	-	
38T (SM-CRE60-11)	w/ Double	50.8	44.2	38.4	-	-	85.4	83.8	67.7	-	

## Carrier type battery and battery mount

C-484

### Battery dimensions C-407

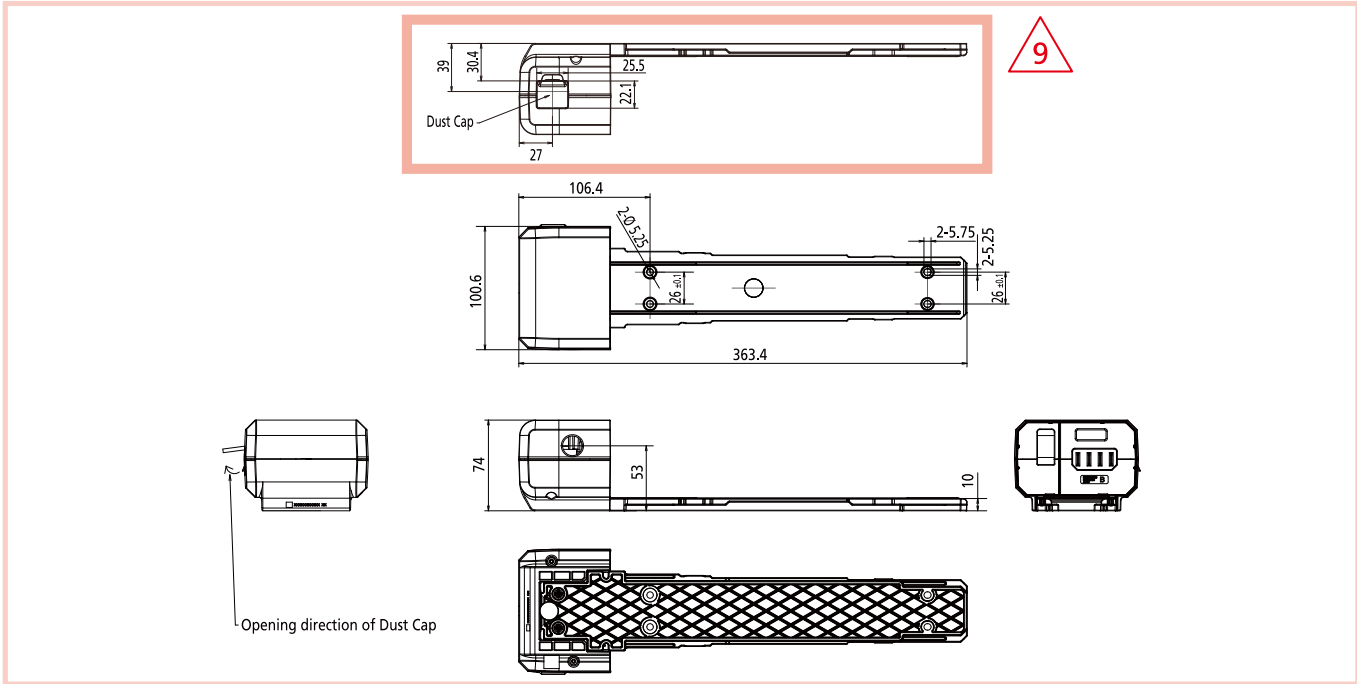
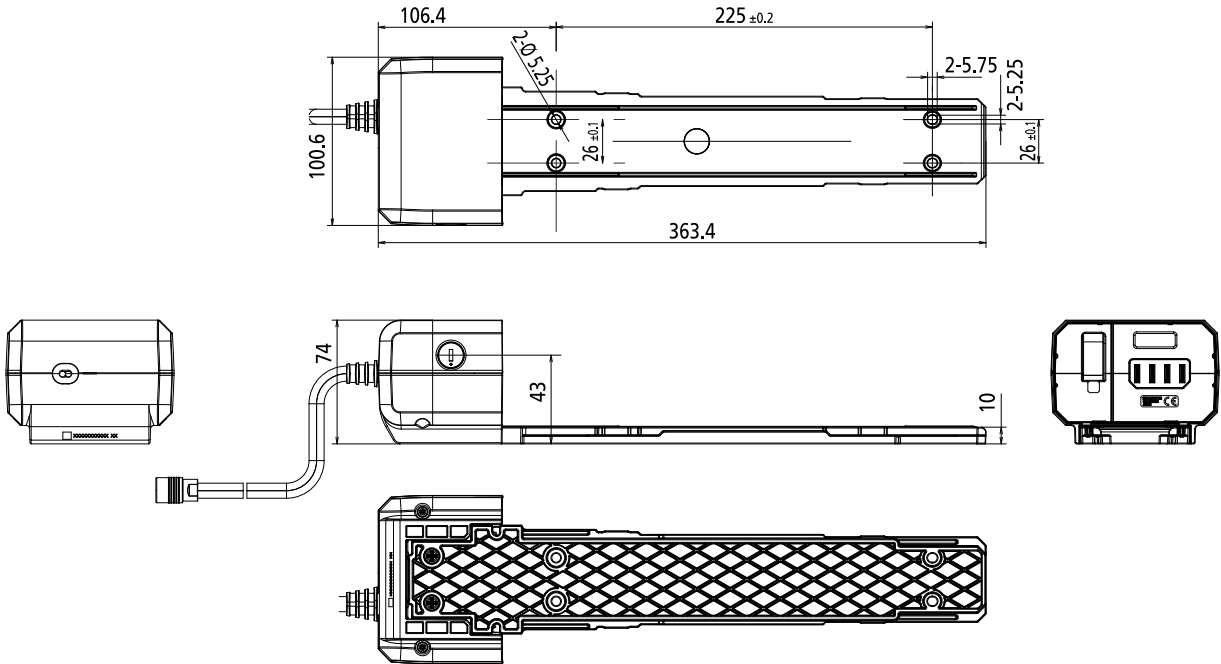
BT-E6000



# Mount dimensions C-408

## SM-BME60-A / SM-BME60-B

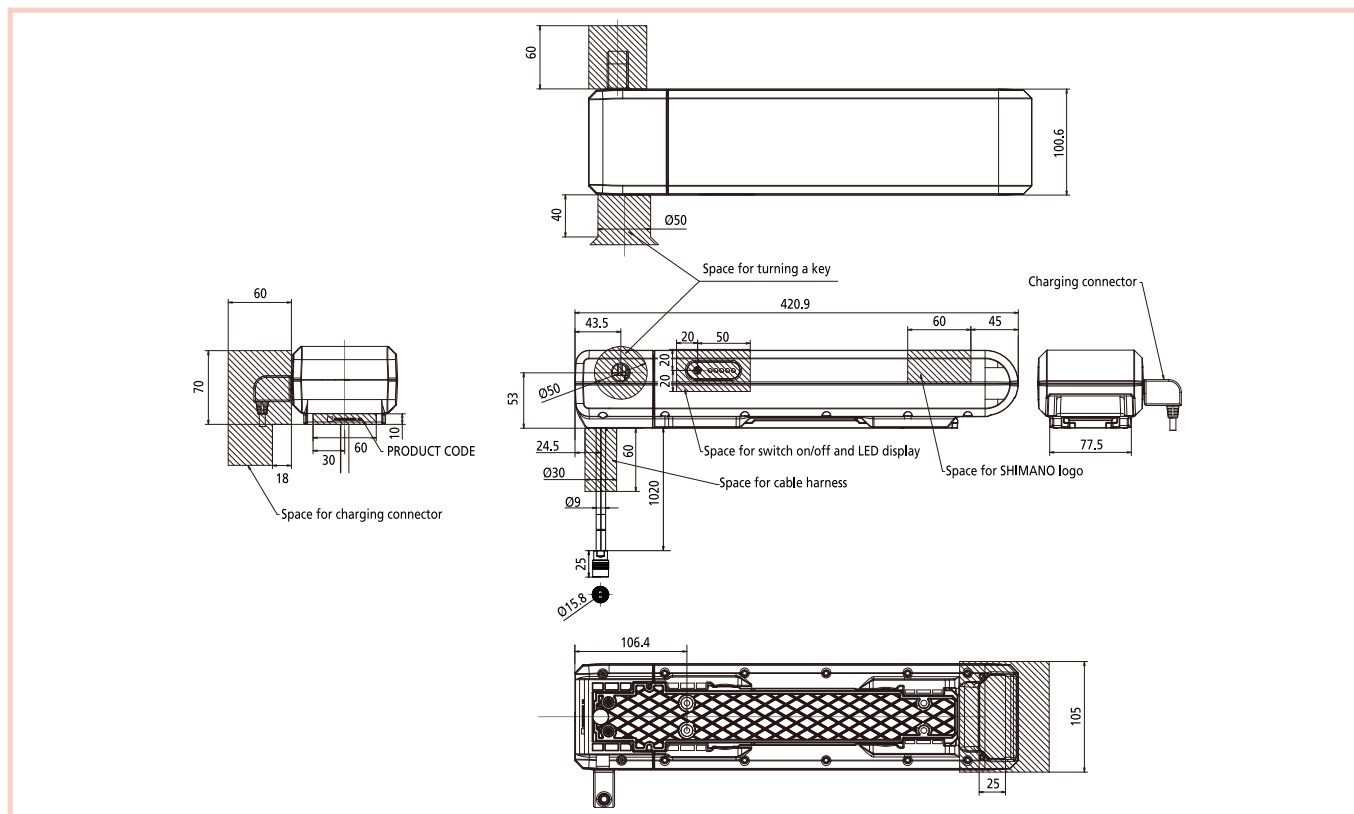
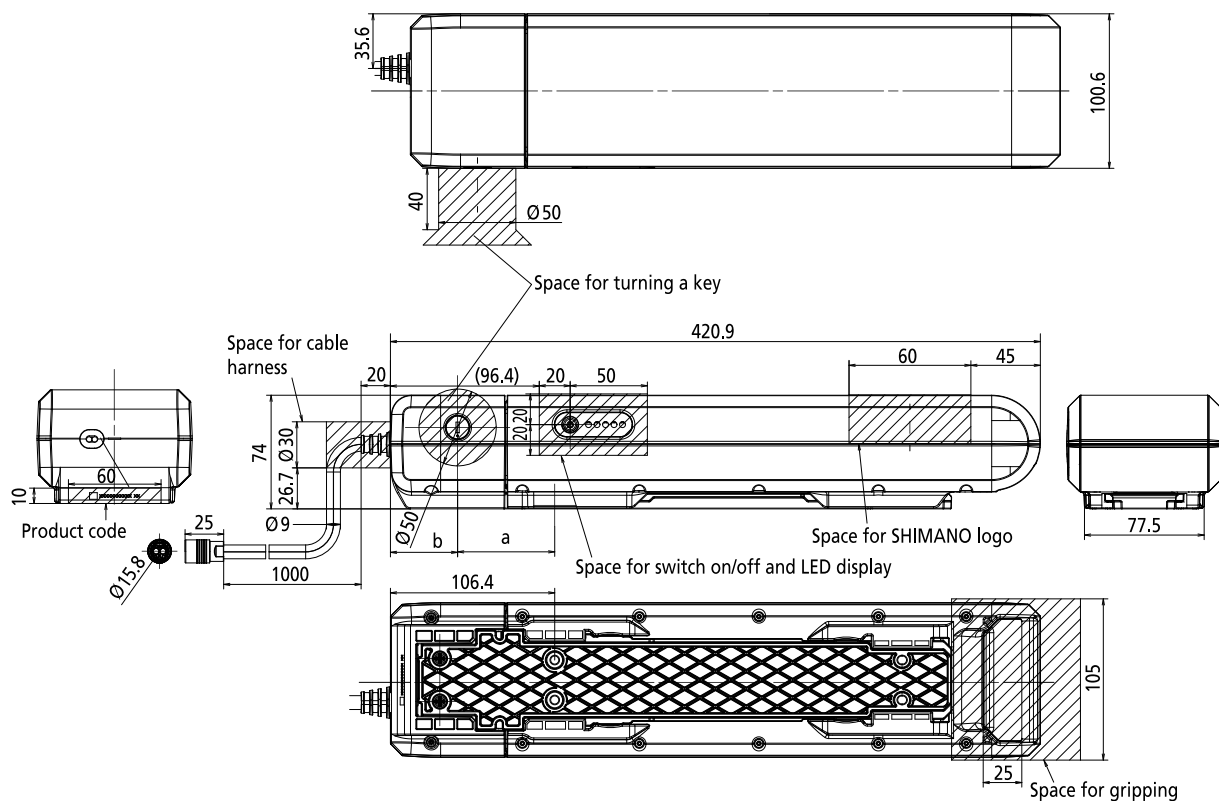
Battery mount doesn't include fixing bolts with carrier.




# Interference dimensions C-409

In these shaded area, there is a possibility of interference.  
Design avoiding these area.

## SM-BME60-A / SM-BME60-B



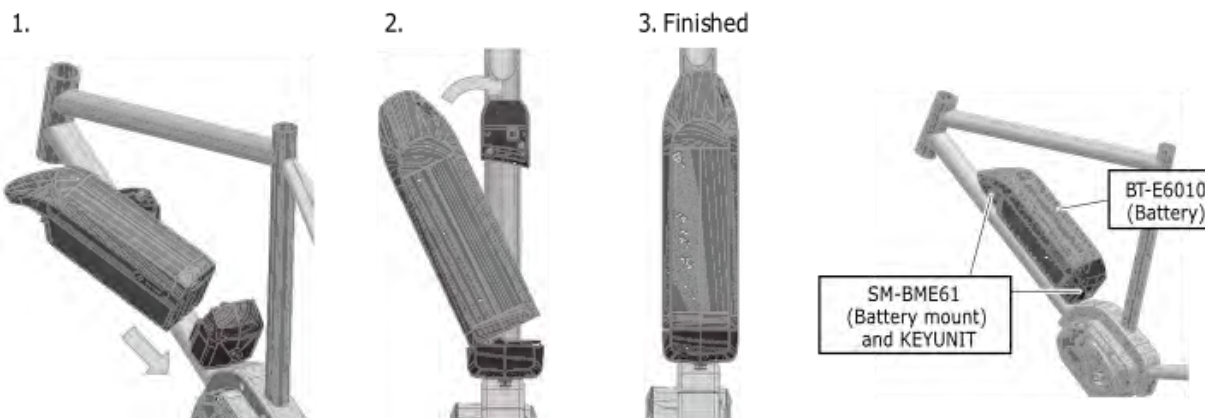
Model No.	a (mm)	b (mm)
 SM-BME60-A/ <a href="#">BM-E6000-A</a>	72.4	34
SM-BME60-B/ <a href="#">BM-E6000-B</a>	62.9	43.5



# Down tube type battery and battery mount

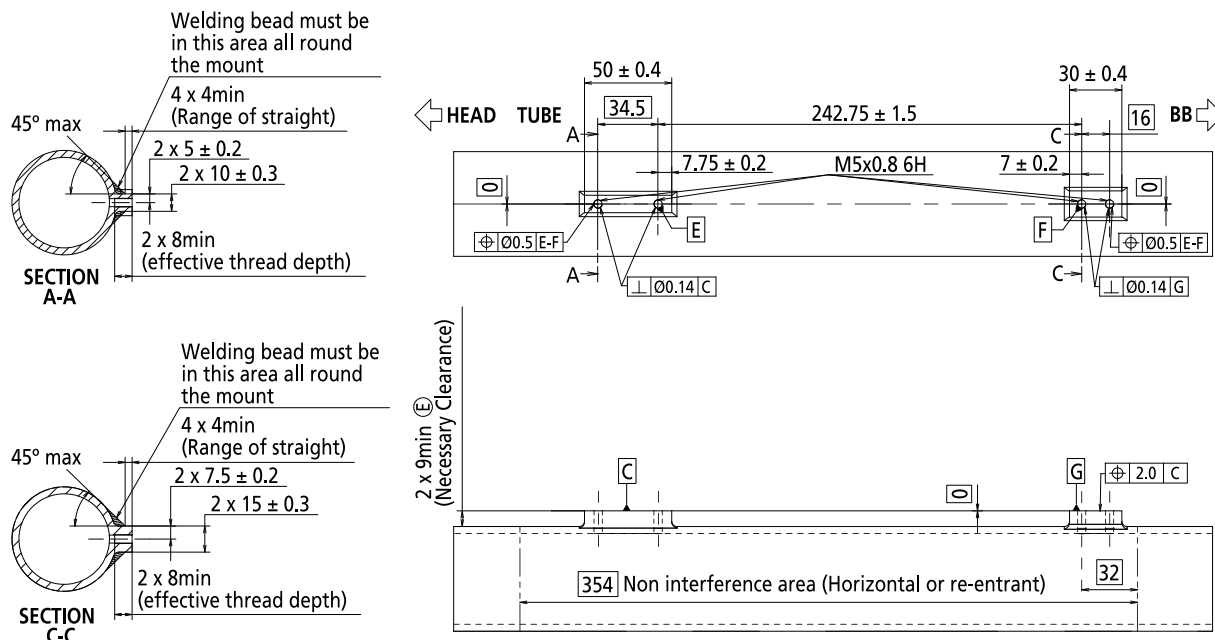
## How to assemble/ disassemble battery C-410

BT-E6010



## Frame requirement for down tube type battery mount C-411

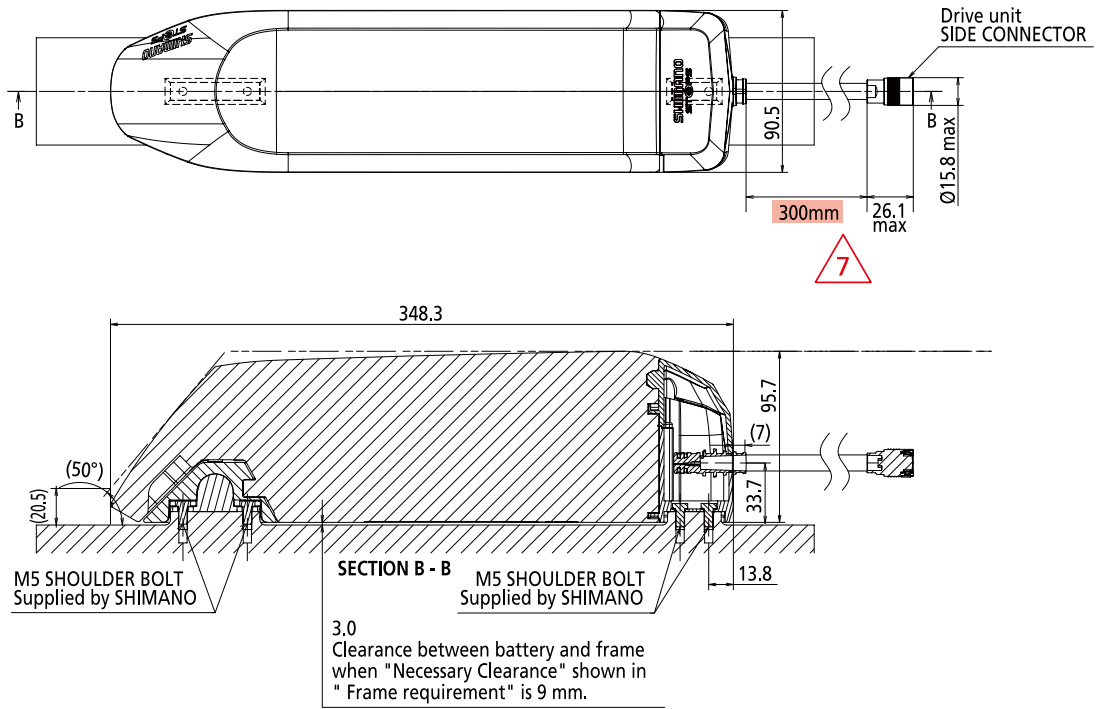
Our recommended tightening torque is 3Nm for four screw holes . Design frame based on it



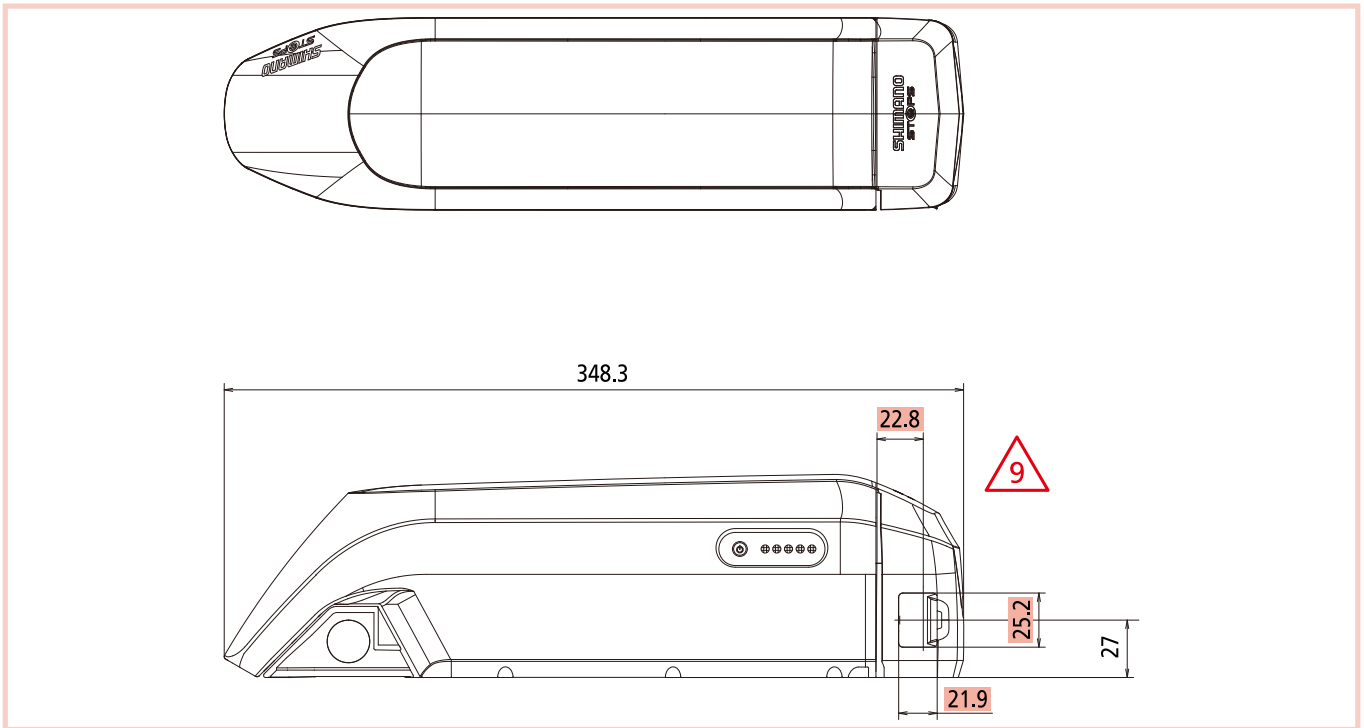
**Battery position : Upper side of down tube only**

# Battery and mount dimensions C-412

BT-E6010 / SM-BME61

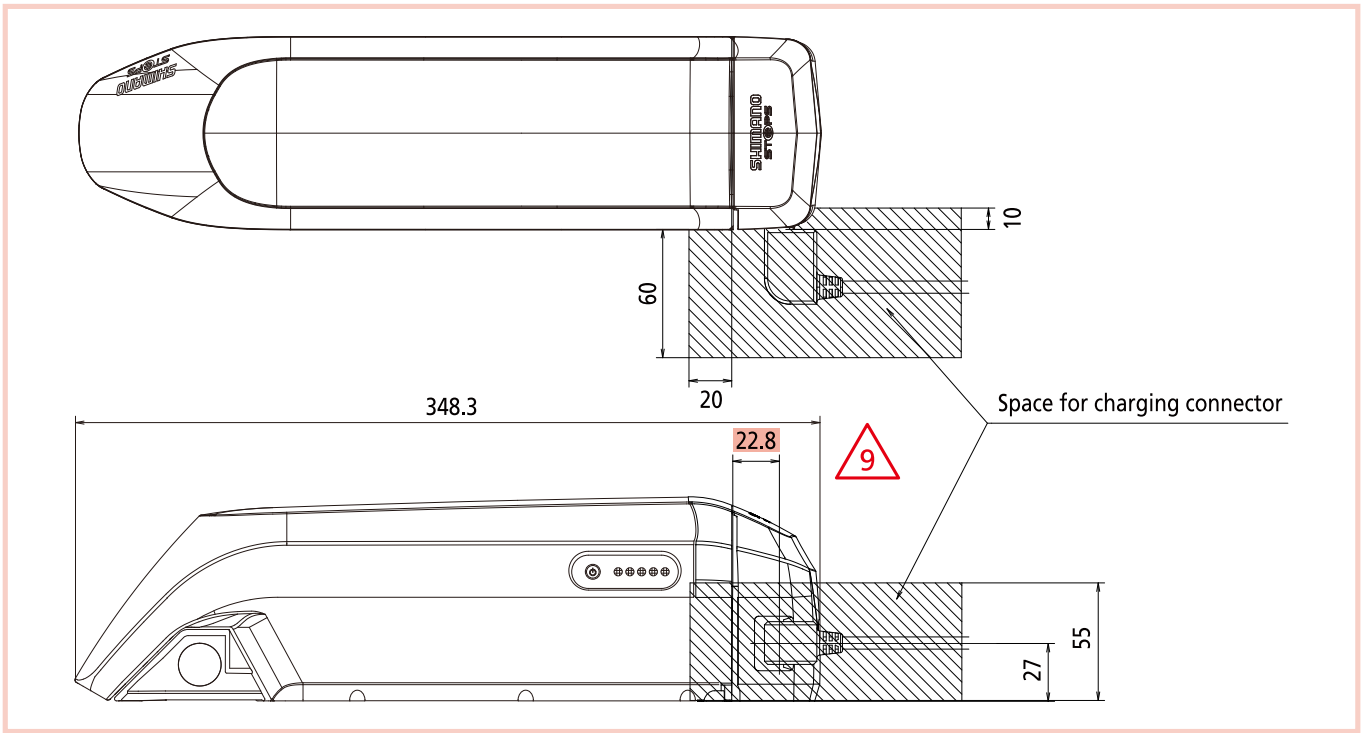


**BT-E6010 / BM-E6010**





## Interference dimensions

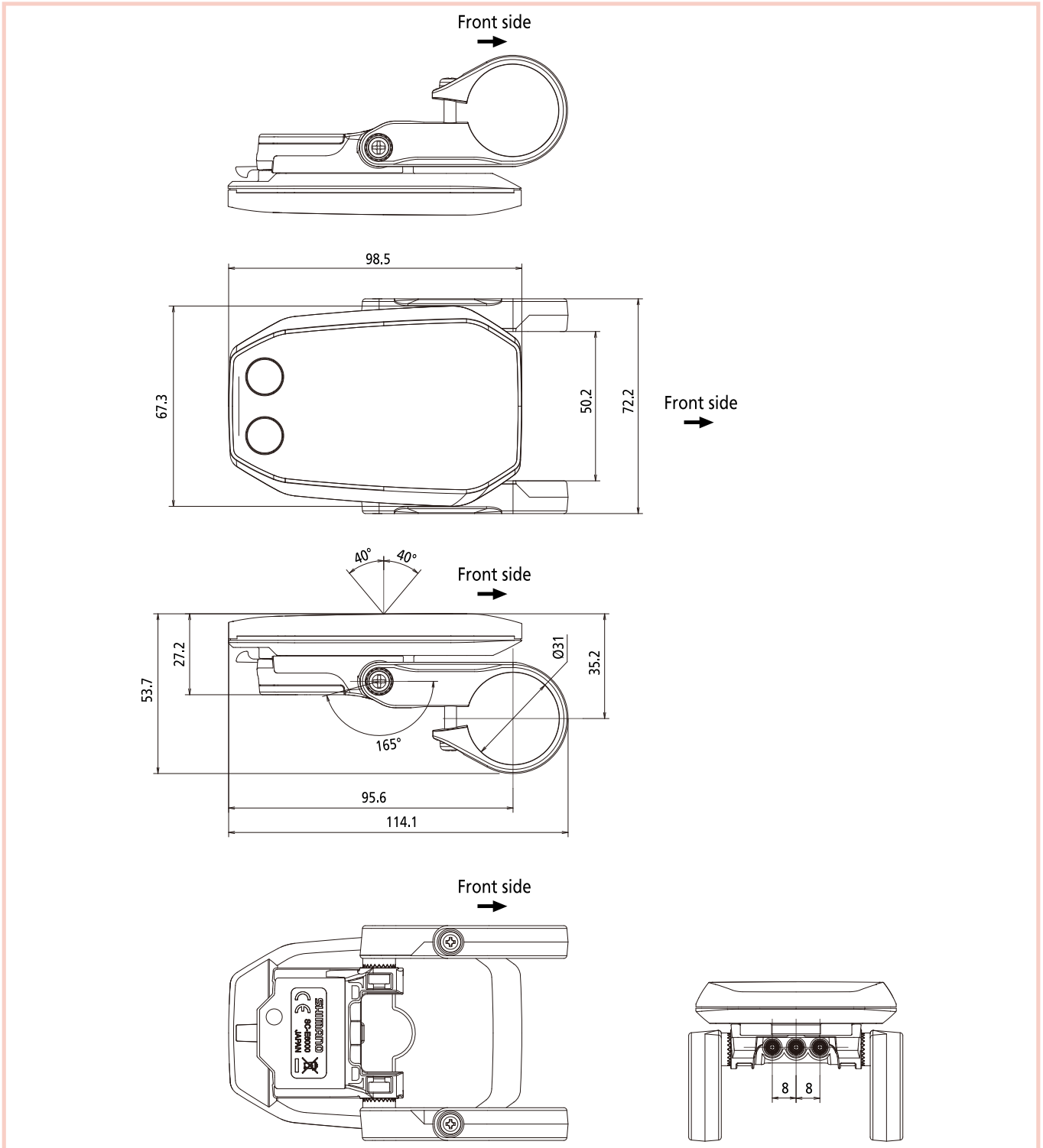




## Dimensions

C-416

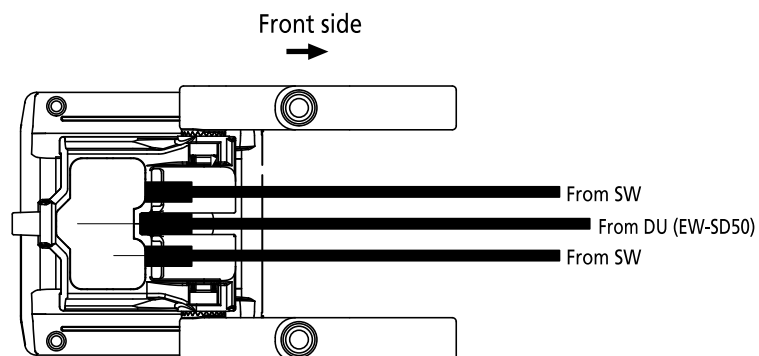
SC-E6010



## Cable directions

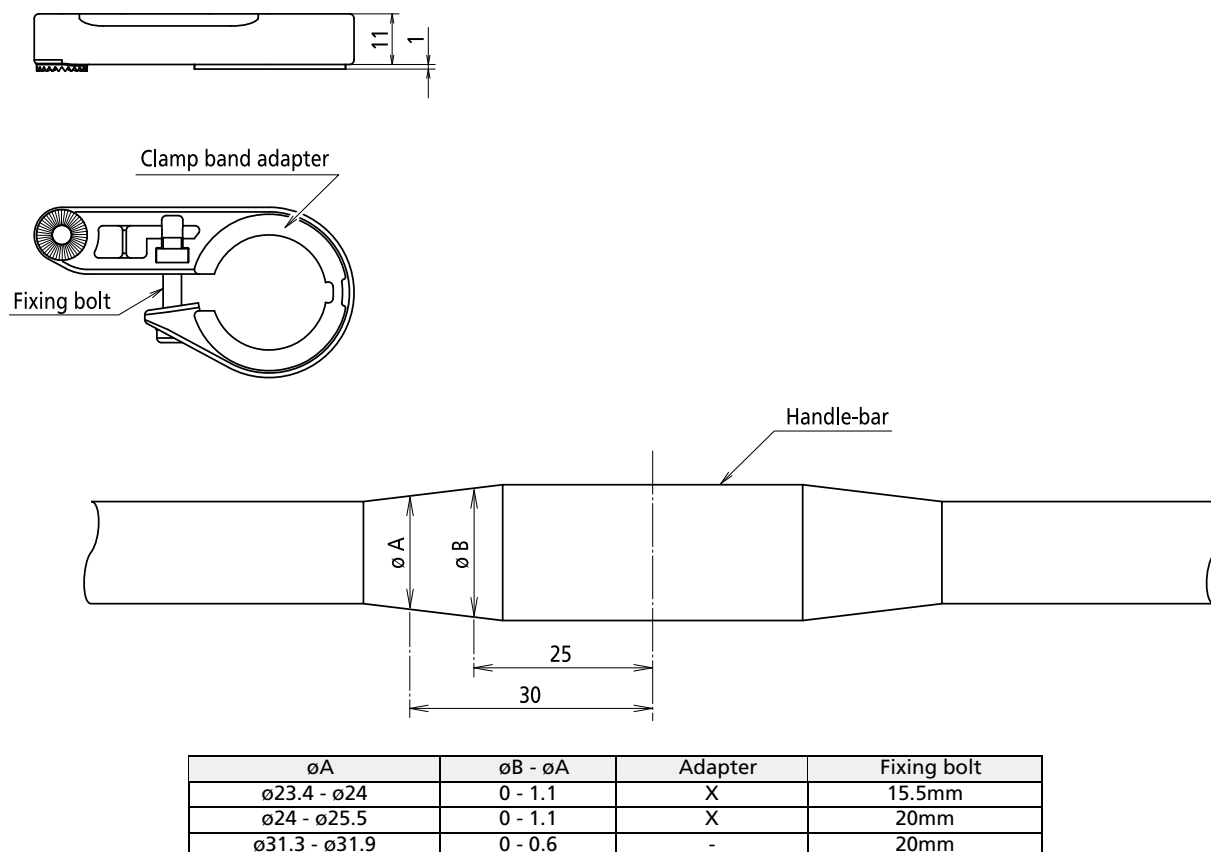
**SC-E6010** has three E-tube ports for EW-SD50.

Two ports are connected with SW units and one port is connected with the cable from DU.



## Accessory for cycle computer and recommended handle-bar dimensions

This includes 1 pair of clamp band adapter and 2 pairs of 2 kinds of length of fixing bolts. Please use them according to the below handle-bar dimensions.

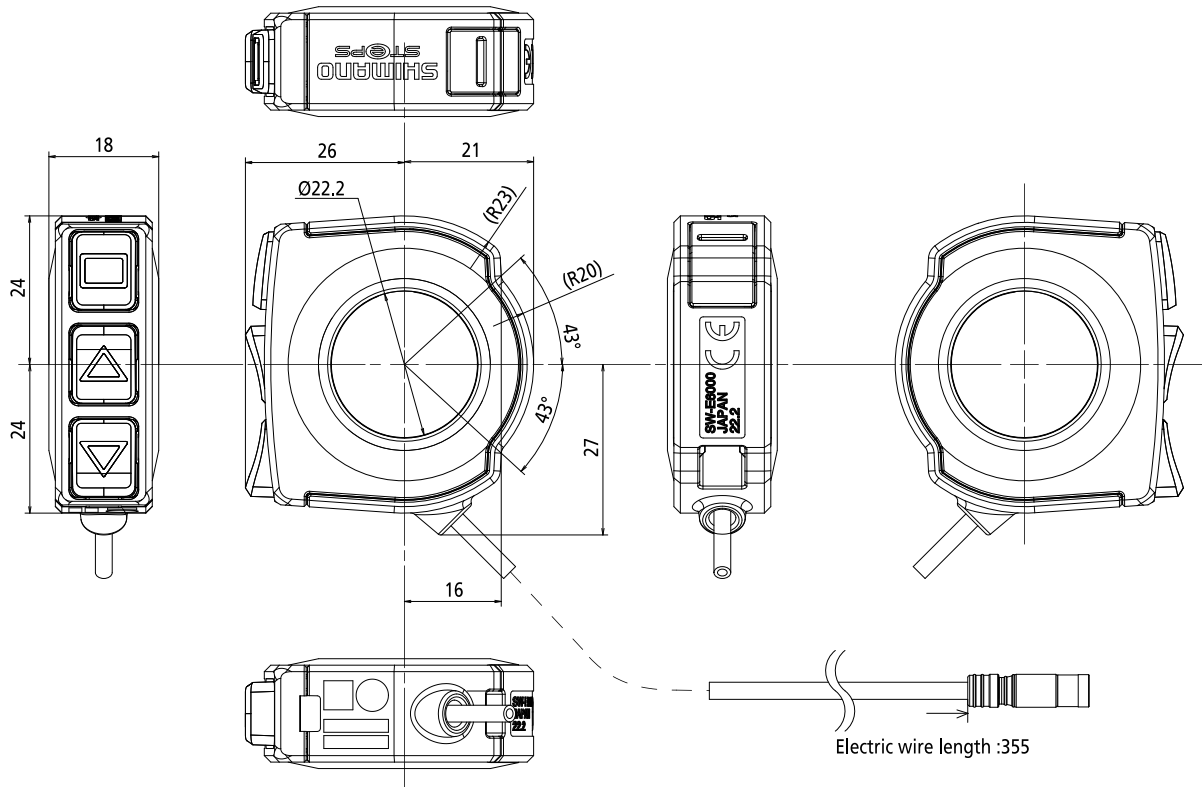


X: Yes

## Dimensions for SW-E6000

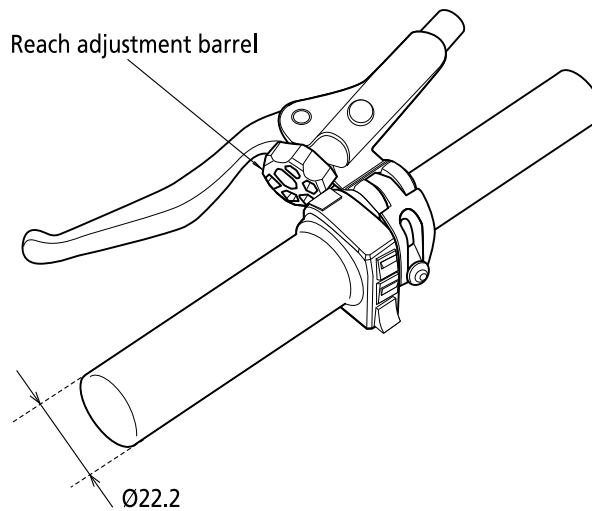
C-420

### SW-E6000



## Compatible handle bar diameter and brake lever

C-421

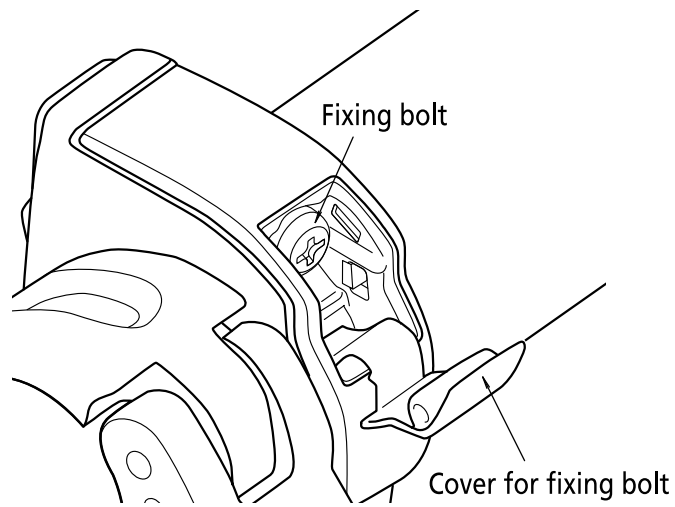
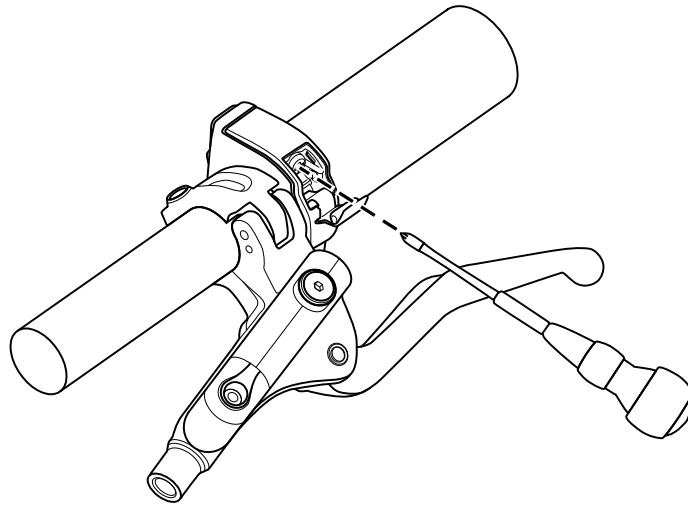


V-BRAKE		Disc brake	
Model No.	Model No.	with Reach adjustment barrel	
BL-IM65	BL-S700-B *	X	
BL-T780-B	BL-T785 *	X	
BL-T670-B	BL-T675 *	X	
BL-T611	BL-T615	-	
BL-T4000	BL-T445	-	

\* In case of using these BL, install by referring the < Assembly angle >.

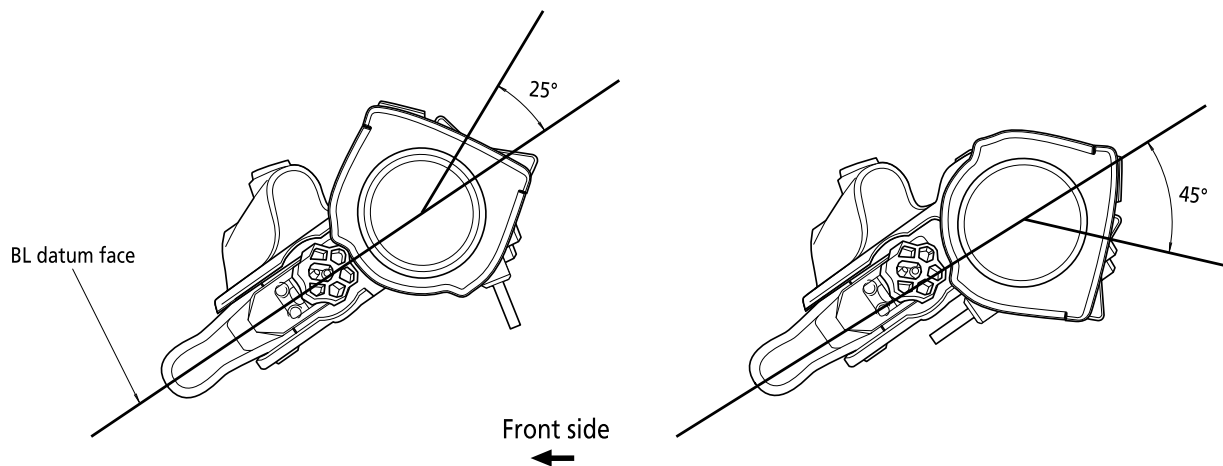
# Assembly

Open the cover for fixing bolt and fix by screw driver.



## Assembly angle

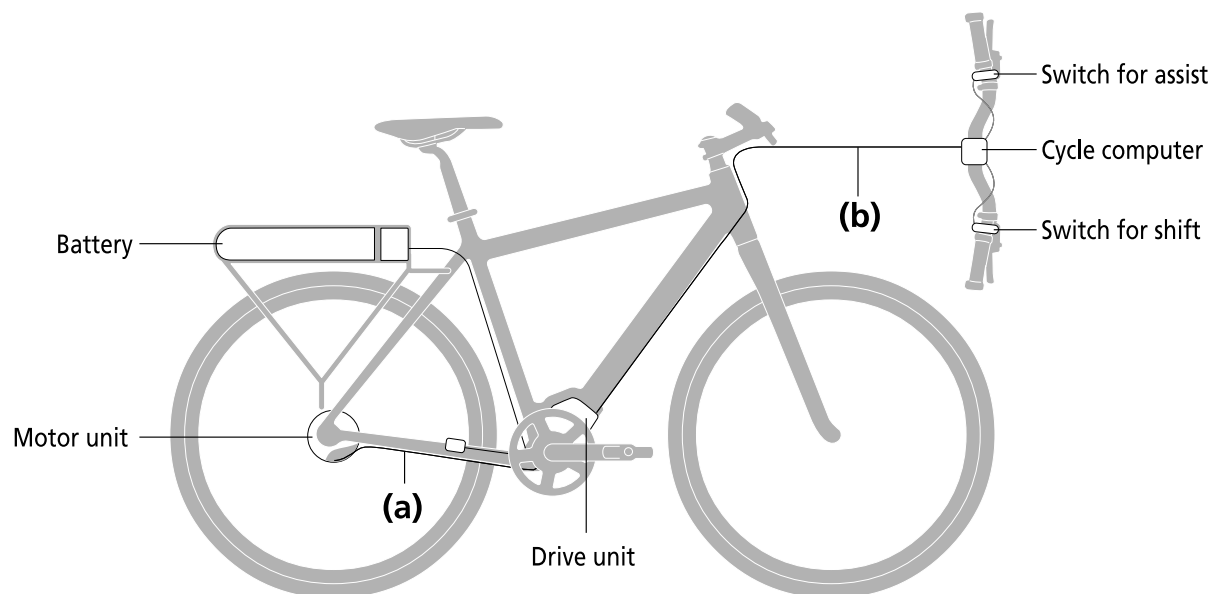
SW is assembled for BL datum face as below.



## Electric wire length

C-424

The limit of maximum length about electric wire routing (Electrical shifting)



Each cable's maximum length

(a)  $\leq 700\text{mm}$  between Motor unit and Drive unit

(b)  $\leq 1600\text{mm}$  between Cycle computer and Drive unit

## Internal Geared Hub

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C-486

Please refer to [C-272](#)

## Drivetrain compatibility

C-488

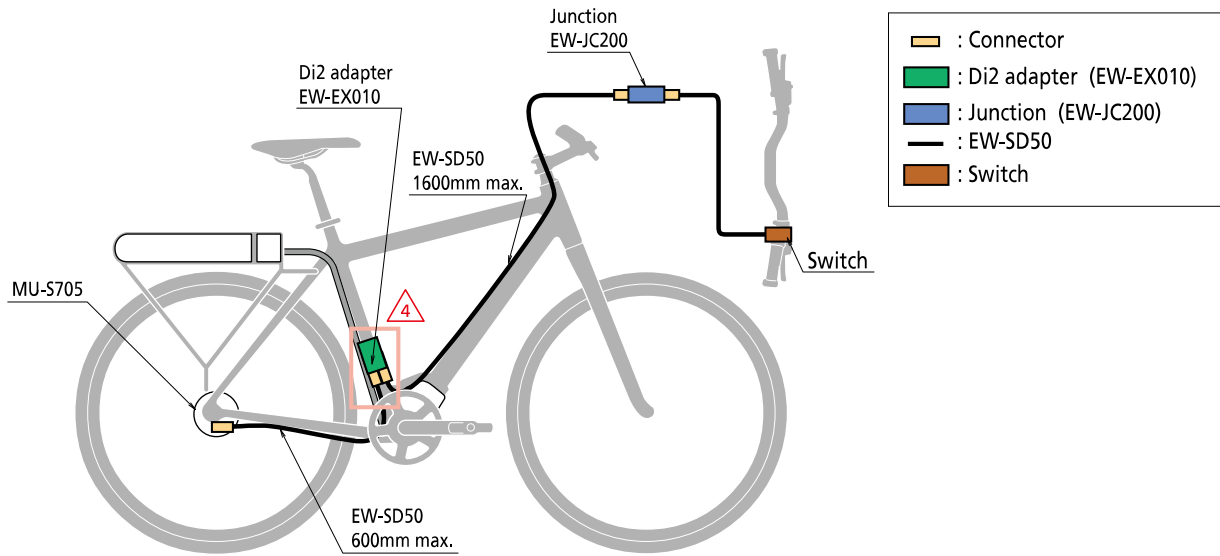
Shifting system	Speed	CT use	Rear sprocket	SM-CRE60	Chain
Di2 Internal geared hub	8/11-speed	-	SM-GEAR	Single / w/o	8-speed
		CT-S500	CS-S500	Double	9/10-speed
		CT-S510	SM-GEAR	Single / w/o	8-speed
Mechanical Internal geared hub	Alfine 8/11-speed	-	SM-GEAR	Single / w/o	8-speed
		CT-S500	CS-S500	Double	9/10-speed
		CT-S510	SM-GEAR	Single / w/o	8-speed
	Nexus 7/8-speed	-	SM-GEAR	Single w/o	8-speed CN-NX10
		CT-S500	CS-S500	Double	9/10-speed
		CT-S510	SM-GEAR	Single / w/o	8-speed

Shifting system	Speed	SM-CRE60	Chain
Rear derailleur system	11-speed	Double	<a href="#">CN-HG701-11</a>
	10-speed	Double	CN-E6090-10
	9-speed	Double	CN-E6070-9
	8-speed	NA	NA

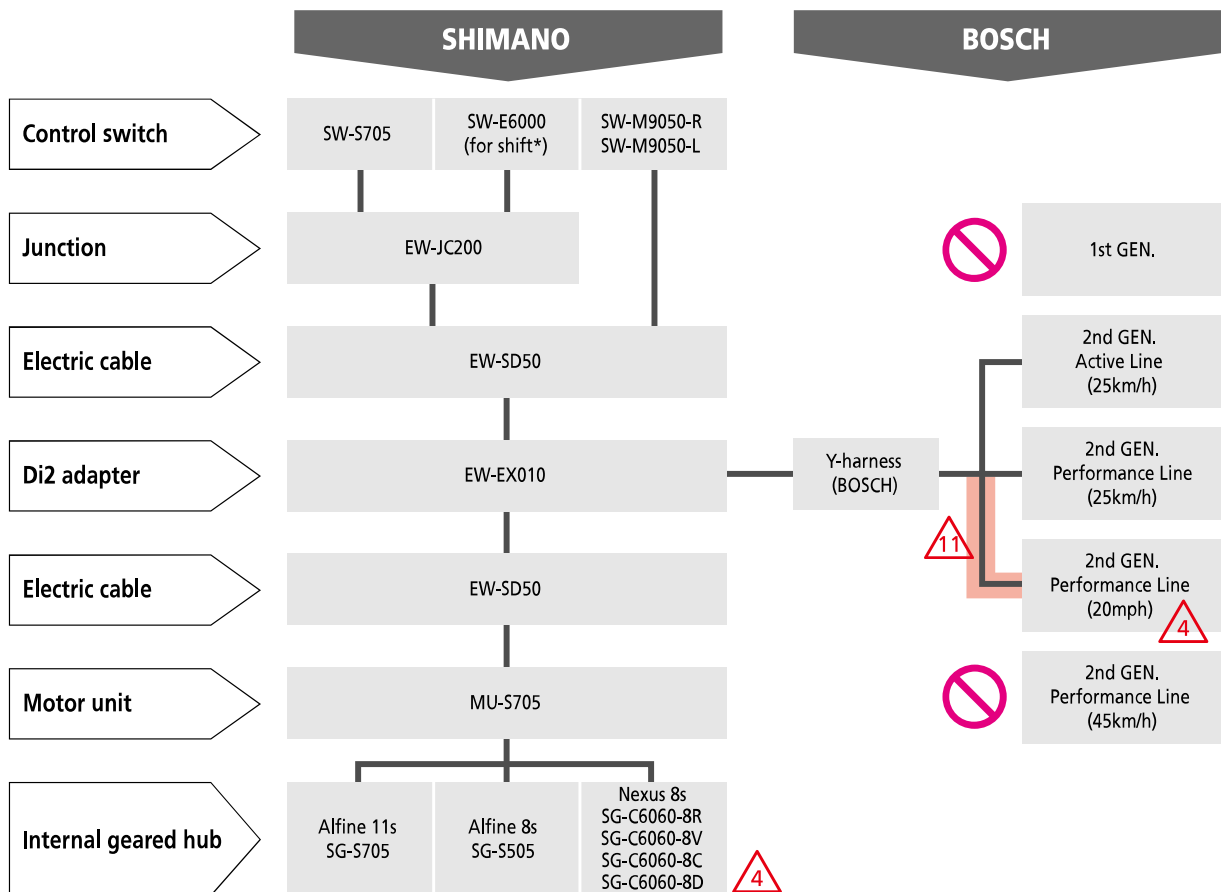
## Di2 adapter B

C-427

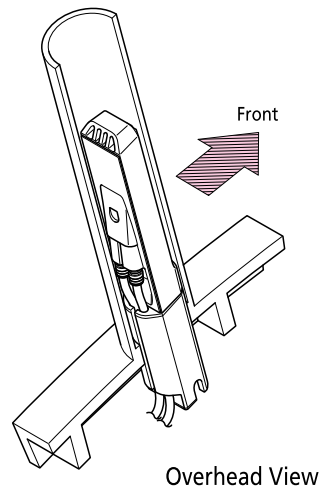
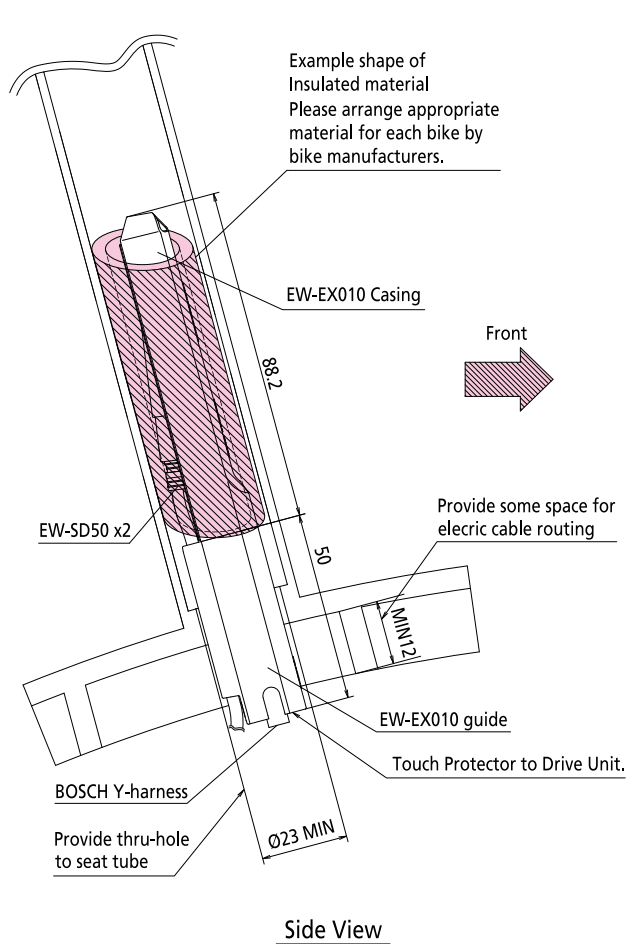
### Cable routing of Di2 adapter B (BOSCH) C-428



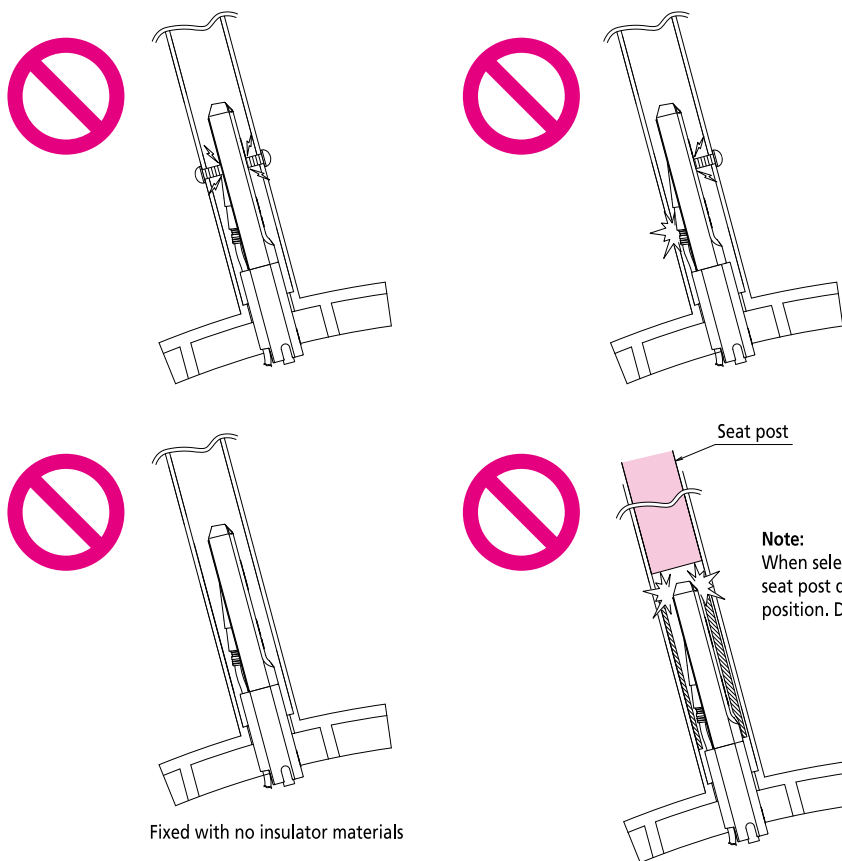
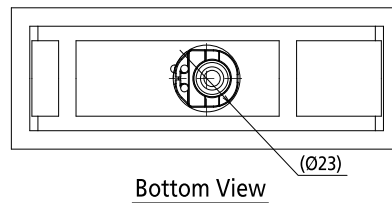
### Compatibility chart C-429



\* When SW-E6000 is shipped from SHIMANO, it is in "for assist" mode. You can use this switch for shifting operation by changing to "for shift" mode by E-tube project. In this case, (X) button has no function.



- Note:**
1. Please do not screw fixation by applying the casing.
  2. Casing should be covered with insulator.  
Shimano recommend; PORON TR-24 5.0t (size 80x125x5)  
\*In case of seat tube inner diameter :31.2
  3. Please be careful of touching Di2 adaptor and seat post.  
Shimano recommend adding mechanical stopper to avoid damage Di2 adaptor.
  4. SHIMANO does not recommend to use glue to fix EW-EX010

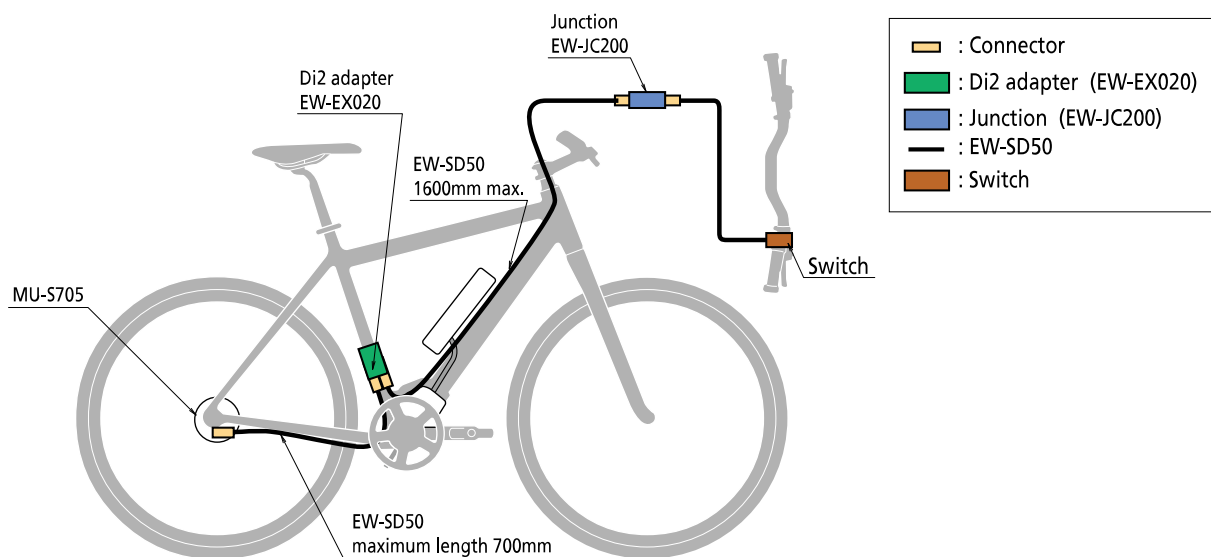


# Di2 adapter A

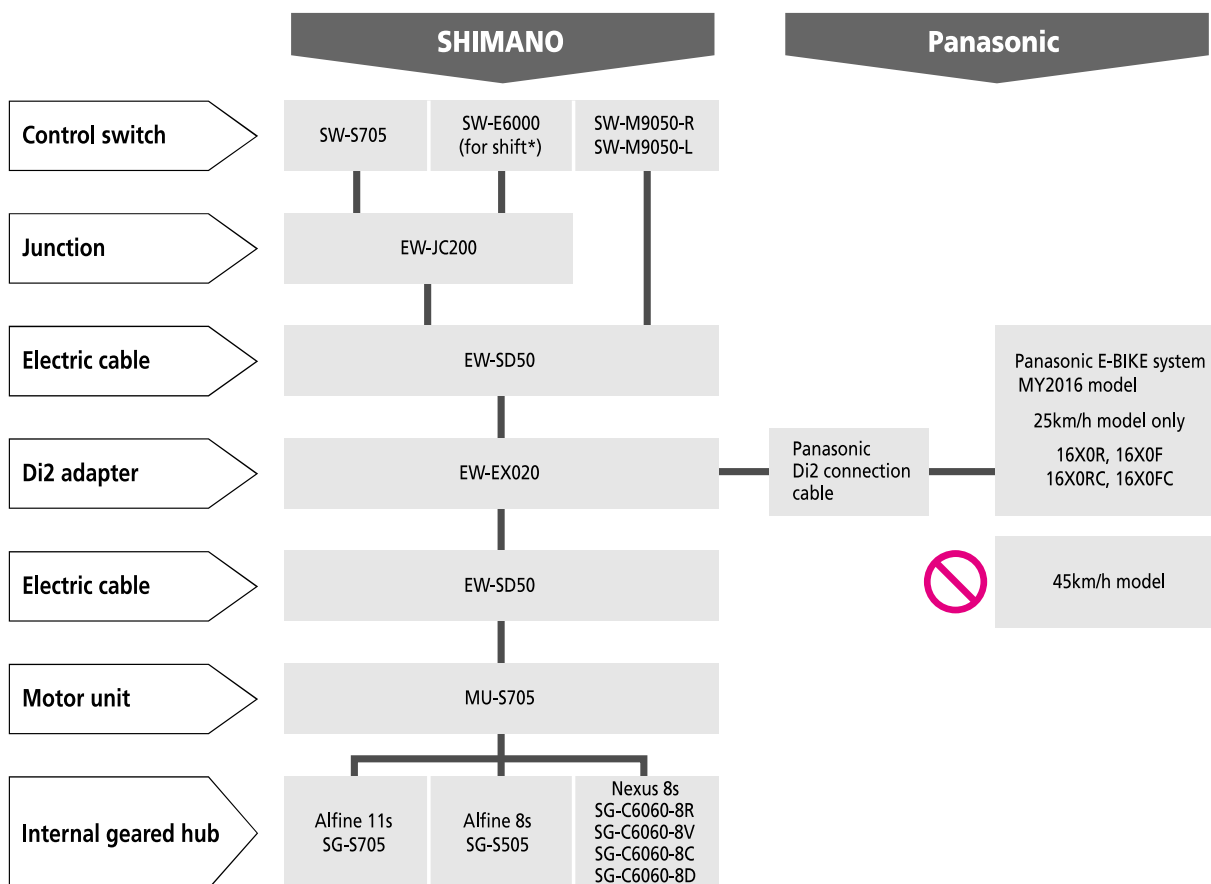
## Cable routing of Di2 adapter A (Panasonic) C-493



Please follow Panasonic instructions for the installation method.



## Compatibility chart C-494



\* When SW-E6000 is shipped from SHIMANO, it is in "for assist" mode. You can use this switch for shifting operation by changing to "for shift" mode by E-tube project. In this case, (X) button has no function.

## Electromagnetic compatibility

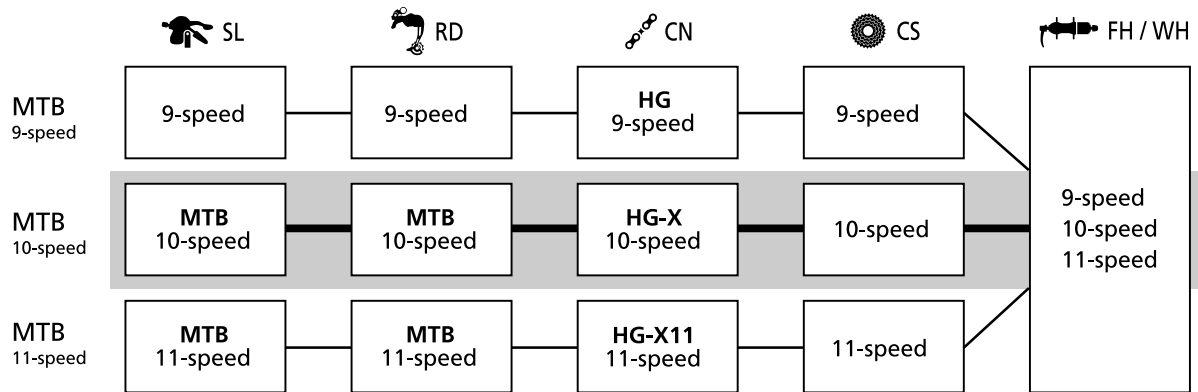
C-487

- European commission require to fulfill electromagnetic compatibility defined by 2014/30/EU on EN15194. It's a part of condition of CE marking on the products.
- EN15194 is requirement of complete assembled bicycle and bicycle supplier has responsible for it.
- Electromagnetic Compatibility on EPAC is affected by following conditions which need to be controlled by bicycle manufacture.
  - Frame design (shape, material, etc.)
  - Electric cable length, routing
  - Assembled electric components
  - Etc.
- Shimano always try to supply a product with a larger margin about EMC to support bicycle manufacture.  
However we do not guarantee compliance with EMC directives for complete bicycles.

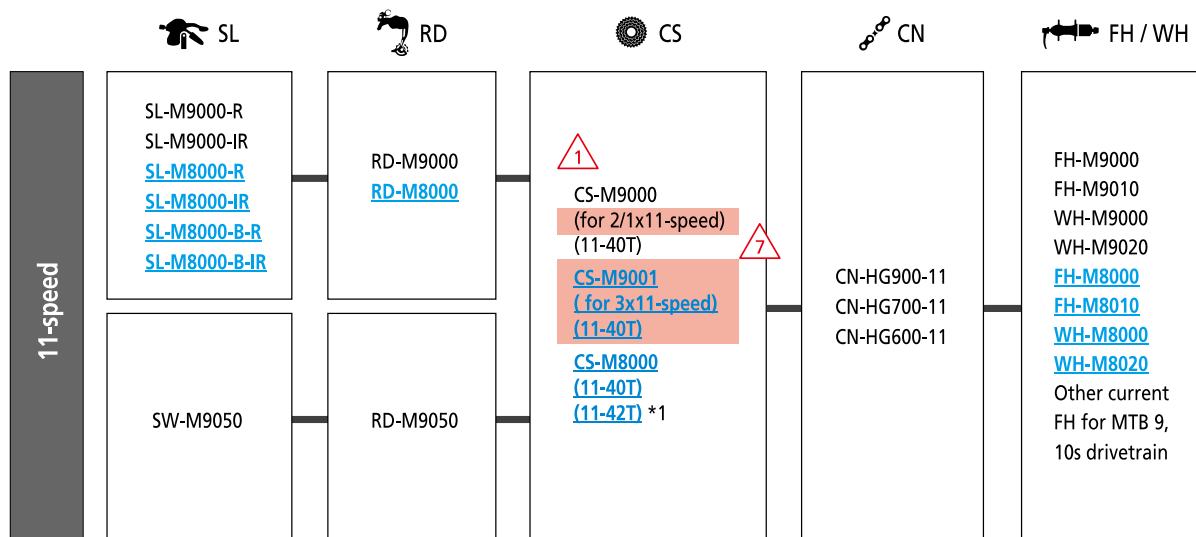
## Rear drivetrain compatibility [MTB]

C-433

### 9,10,11-speed rear drivetrain compatibility C-434

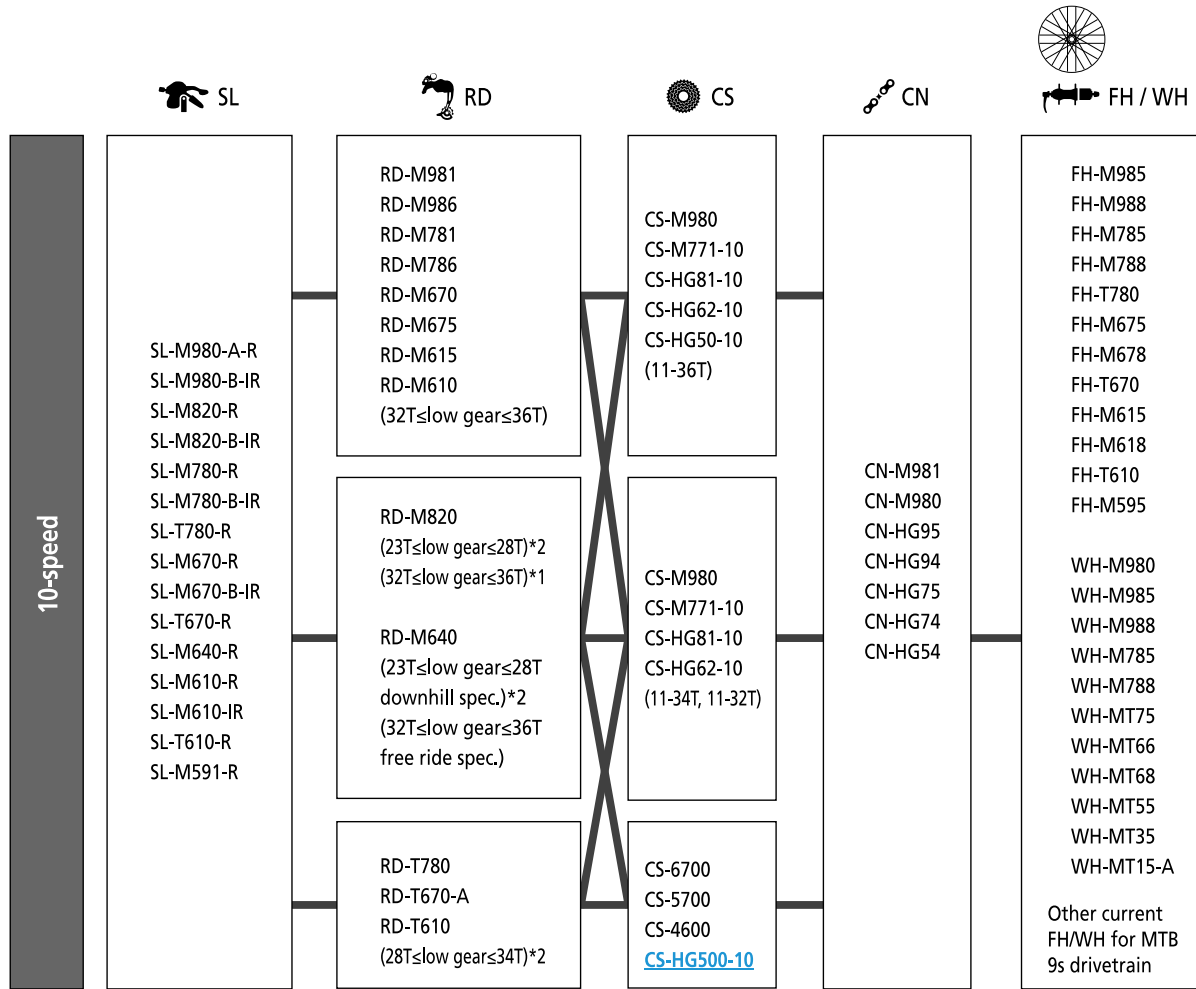


### 11-speed rear drivetrain [MTB] C-435



<sup>1</sup> 11-42T is compatible with only 1x11 drive train.

# 10-speed rear drivetrain [MTB] C-436



\*1 Mode converter

\*2 Compatible with road Cassette sprocket

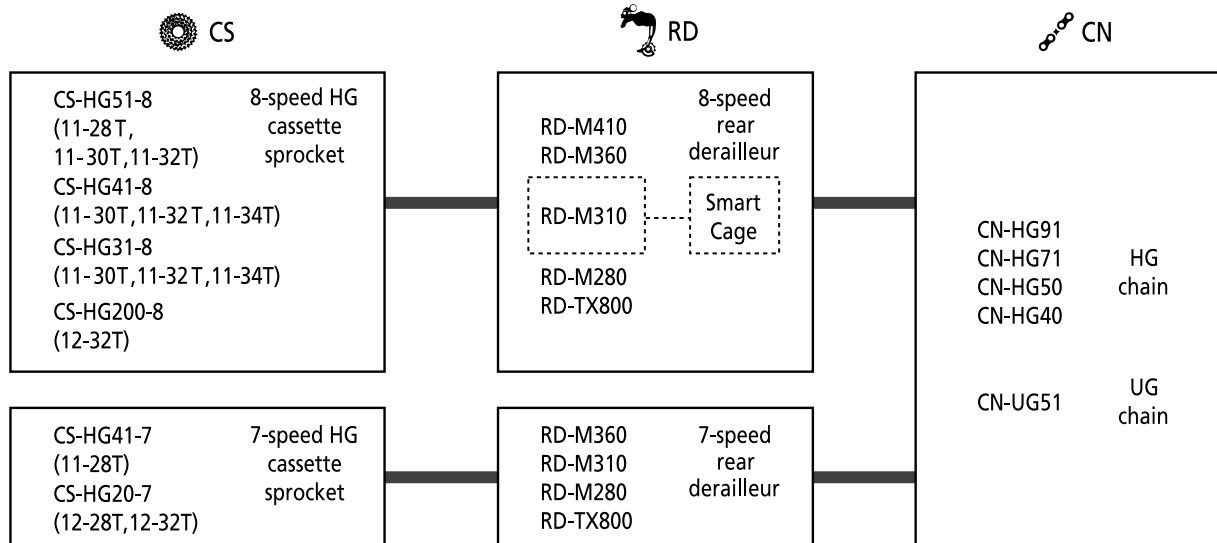
## 9-speed rear drivetrain [MTB] C-437

Cassette Sprocket			Shadow RD	W-servo RD	CN
			RD-M772 RD-M662 RD-M592 RD-M4000 <a href="#">RD-M3000</a>	RD-T4000 RD-M430 <a href="#">RD-T3000</a> RD-M390 RD-M370	CN-7701 CN-HG93 CN-HG73 CN-HG53
CS-HG61-9	bh	12-36T	X	-	X
CS-HG400-9	bh				
CS-HG300-9	bh				
CS-HG80-9	au	11-34T	X	X	X
CS-HG61-9	au				
CS-HG400-9	au				
CS-HG300-9	au				
CS-HG200-9	bn				
CS-HG50-9	au				
CS-HG30-9	au				
CS-HG20-9	bn				
CS-HG80-9	ar	11-32T	X	X	X
CS-HG61-9	ar				
CS-HG400-9	ar				
CS-HG300-9	ar				
CS-HG200-9	bo				
CS-HG50-9	ar				
CS-HG30-9	ar				
CS-HG20-9	bo				
CS-HG80-9	bg	11-28T	-	X	X
CS-HG61-9	bg				
CS-HG400-9	bg				
CS-HG300-9	bg				

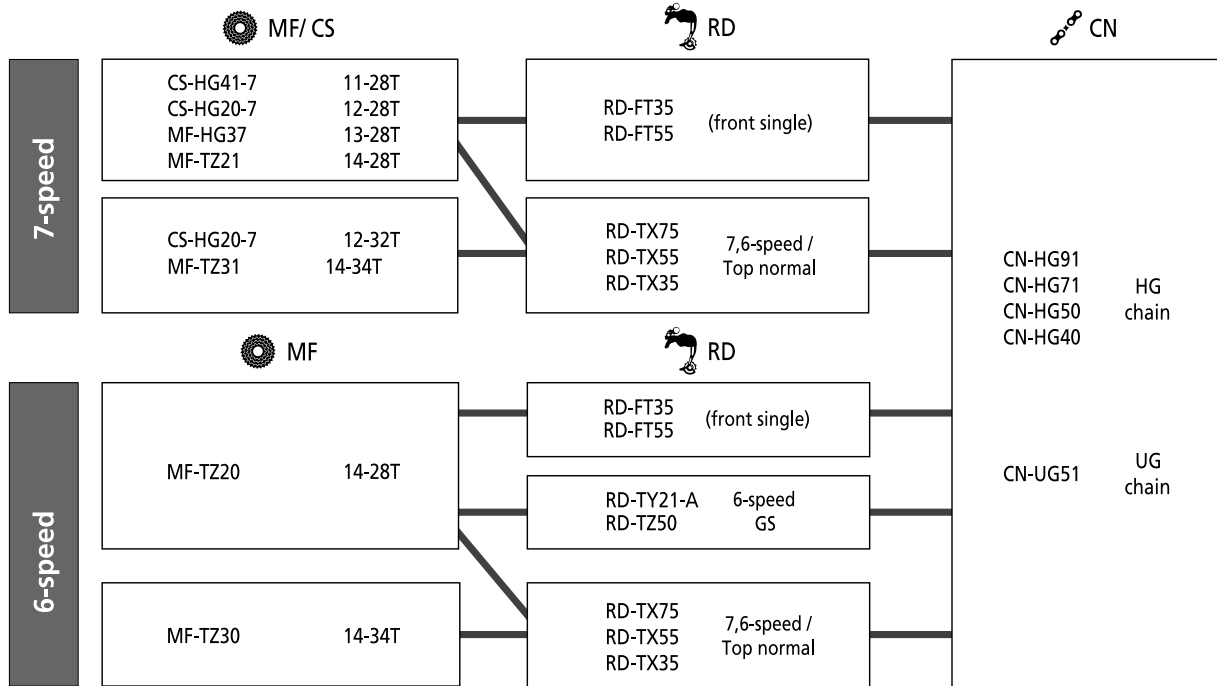
X: Yes

## 8,7-speed HG [MTB] C-438

The rear derailleur for 8-speed can also be used for 7-speed drivetrain.



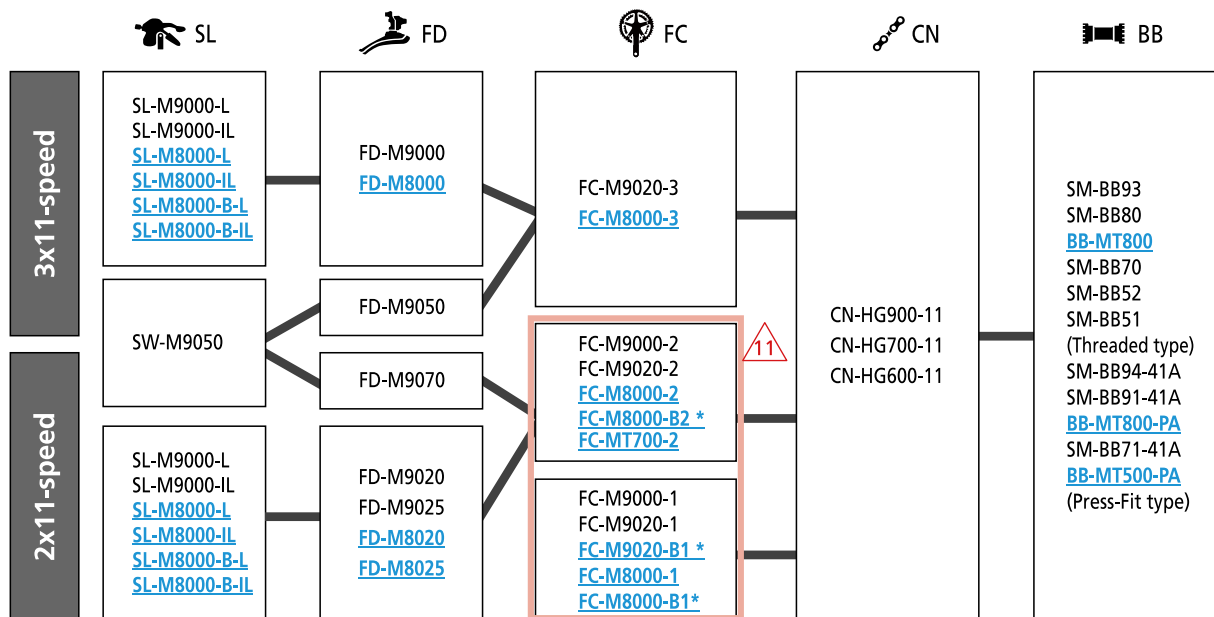
## 7-speed HG and 6-speed [MTB] C-439



## Front drivetrain compatibility [MTB]

C-440

### 11-speed front drivetrain C-441

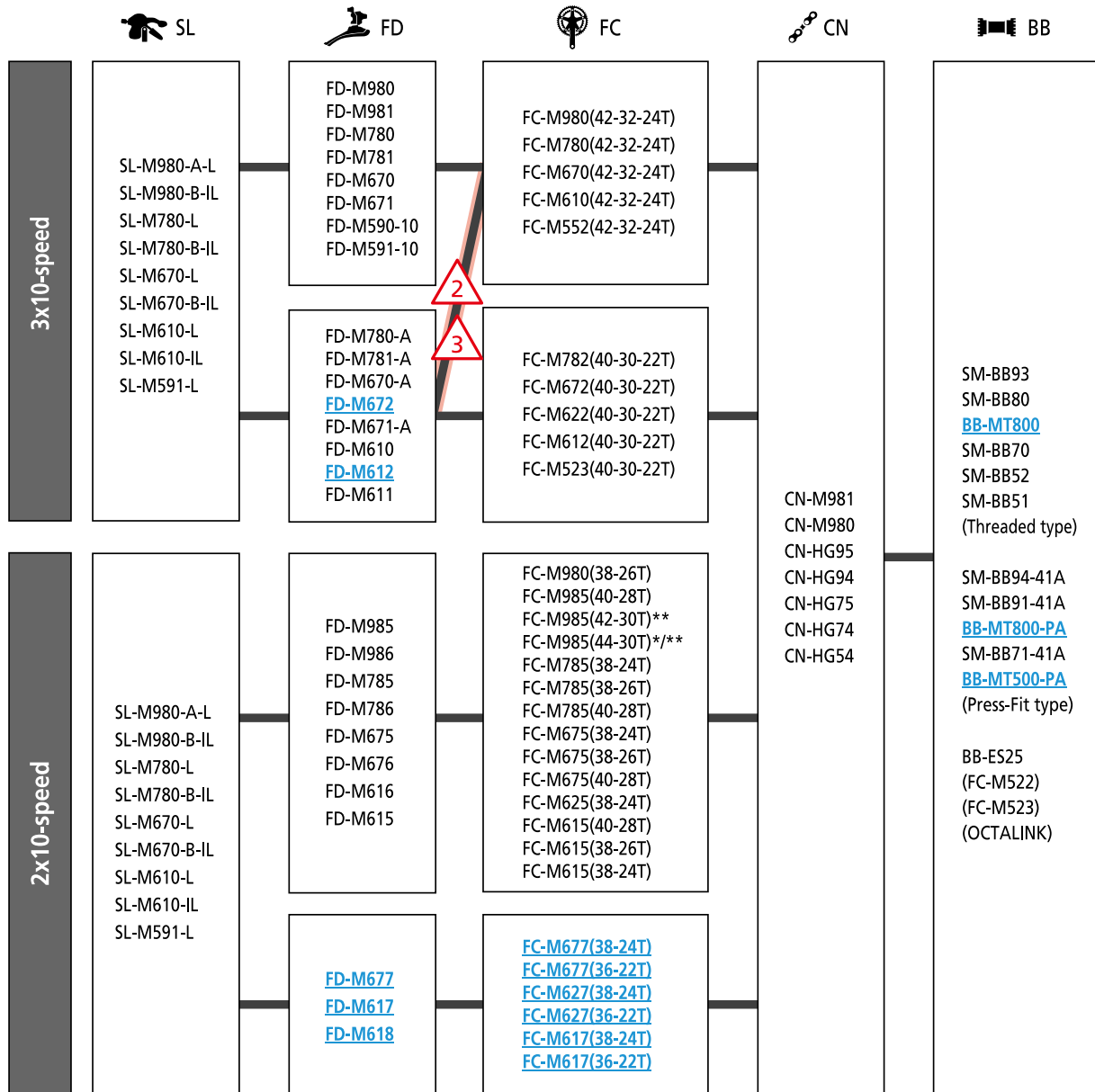


#### NOTE

\*Please refer to technical information of crankset dimension which is 3mm outboard spec.

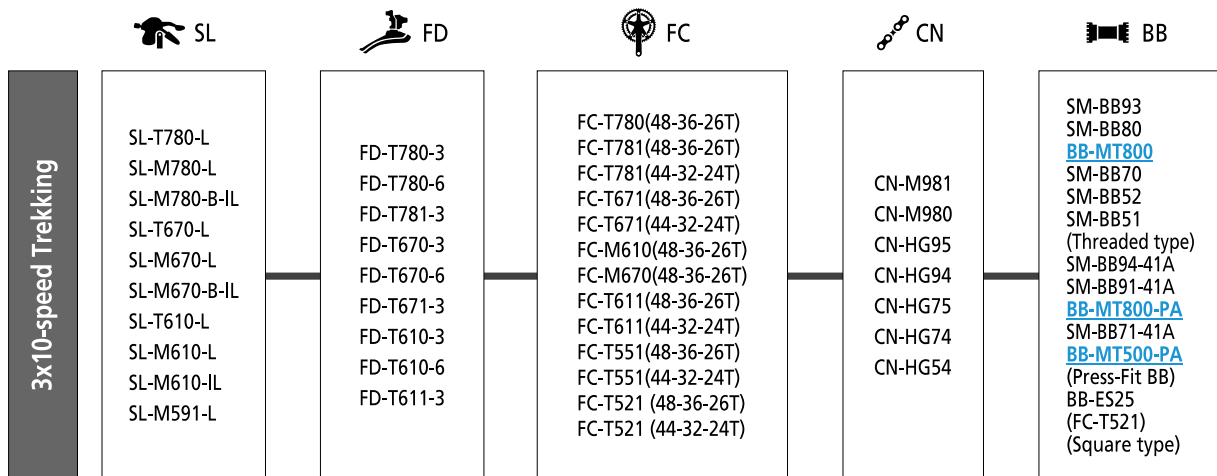
\*It also requires new dimension of frame which cassette position is 3mm outboard

# 10-speed front drivetrain [MTB] C-442



\*: Mount position is required for FD-M986-D used with double crankset 44T.

\*\*\*: Not compatible with E2 type front derailleur.



## 11-speed FC-FD compatibility [MTB] C-443

		Speed		11-speed	
		Chain line		50	48.8
		Chain stay angle		66-69°	
Chain line (mm)	FC Model No.	Gear combination	For triple	For double	
			FD-M9000 FD-M9050 <a href="#">FD-M8000</a>	FD-M9020 FD-M9025 FD-M9070 <a href="#">FD-M8020</a> <a href="#">FD-M8025</a>	
48.8	FC-M9000-2	38-28T	-		X
	FC-M9020-2	36-26T	-		X
	<a href="#">FC-M8000-2</a>	34-24T	-		X
	<a href="#">FC-MT700-2</a>	36-26T	-		X
50	FC-M9020-3 <a href="#">FC-M8000-3</a>	40-30-22T	X		-

### 11-speed FC-FD compatibility B type

		Speed		11-speed
		Chain line		48.8
		Chain stay angle		66-69°
Chain line (mm)	FC Model No.	Gear combination	For double	
			FD-M9020 FD-M9025 FD-M9070 <a href="#">FD-M8020</a> <a href="#">FD-M8025</a>	
51.8	<a href="#">FC-M8000-B2</a>	36-26T		X

# 10-speed FC-FD compatibility [MTB] C-444

Model No.	Top swing / Side swing (L, E-type)						
	For triple						
	Chain stay angle	66°- 69°					63°- 66°
	Gear combination	FD-M980	FD-M780-A FD-M670-A FD-M610	FD-M980-E	FD-M780-A-E FD-M672-L FD-M672-E FD-M670-A-E FD-M612-L FD-M612-E FD-M610-E	FD-T780-6 FD-T670-6 FD-T610-6	FD-T780-3 FD-T670-3 FD-T610-3
FC-M980 FC-M780 FC-M670 FC-M610 FC-M552 FC-M522 (BB-ES25 113 mm)	42-32-24T	X	X	X	X		-
FC-M782 FC-M672 FC-M622 FC-M612	40-30-22T	-	X	-	X		-
FC-M523	40-30-22T	-	X	-	X		-
FC-M610	48-36-26T	-	-	-	-		X
FC-T780 FC-M670	48-36-26T	-	-	-	-		X
FC-T781 FC-T671 FC-T611 FC-T551 FC-T521	48-36-26T	-	-	-	-		X
	44-32-24T	-	-	-	-		X

Model No.	Top swing / Side swing (L, E-type)				
	For double				
	Chain stay angle	66°- 69°			
	Gear combination	FD-M985 FD-M785 FD-M675 FD-M615	FD-M985-E	FD-M985-E2 FD-M785-E2 FD-M675-E2 FD-M615-E2 (w/o BB plate only)	<a href="#">FD-M677-L</a> <a href="#">FD-M677-E</a> <a href="#">FD-M617-L</a> <a href="#">FD-M617-E</a> <a href="#">FD-M618-L</a> <a href="#">FD-M618-E</a>
FC-M985	44-30T	X	X	-	-
	42-30T	X	X	-	-
	40-28T	X	X	X	-
FC-M980	38-26T	X	-	X	-
FC-M785 FC-M675 FC-M625 FC-M615	40-28T	X	X	X	-
	38-26T	X	-	X	-
	38-24T	X	-	X	-
<a href="#">FC-M677</a>	38-24T	-	-	-	X
<a href="#">FC-M627</a> <a href="#">FC-M617</a>	36-22T	-	-	-	X

Model No.	Down swing / Side swing (H, D-type)					
	For triple					
	Chain stay angle	66°- 69°				63°- 66°
	Gear combination	FD-M981	FD-M781-A FD-M671-A FD-M611	FD-M981-D	FD-M781-A-D FD-M672-H FD-M672-D FD-M671-A-D FD-M612-H FD-M612-D FD-M611-D	FD-T781-3 FD-T671-3 FD-T611-3
FC-M980 FC-M780 FC-M670 FC-M610 FC-M552 FC-M522 (BB-ES25 113 mm)	42-32-24T	X	X	X	X	-
FC-M782 FC-M672 FC-M622 FC-M612	40-30-22T	-	X	-	X	-
FC-M523	40-30-22T	-	X	-	X	-
FC-M610	48-36-26T	-	-	-	-	X
FC-T780 FC-M670	48-36-26T	-	-	-	-	X
FC-T781 FC-T671 FC-T611 FC-T551 FC-T522	48-36-26T	-	-	-	-	X
	44-32-24T	-	-	-	-	X

Model No.	Down swing / Side swing (H, D-type)			
	For double			
	Chain stay angle	66°- 69°		
	Gear combination	FD-M986 FD-M786 FD-M676 FD-M616	FD-M986-D FD-M786-D FD-M676-D FD-M616-D	<a href="#">FD-M677-H</a> <a href="#">FD-M677-D</a> <a href="#">FD-M617-H</a> <a href="#">FD-M617-D</a> <a href="#">FD-M618-H</a> <a href="#">FD-M618-D</a>
FC-M985	44-30T	X	X*	-
	42-30T	X	X	-
	40-28T	X	X	-
FC-M980	38-26T	X	X	-
FC-M785 FC-M675 FC-M625 FC-M615	40-28T	X	X	-
	38-26T	X	X	-
	38-24T	X	X	-
<a href="#">FC-M677</a> <a href="#">FC-M627</a> <a href="#">FC-M617</a>	38-24T	-	-	X
	36-22T	-	-	X

\*: Mount position is required for FD-M986-D used with double crankset 44T.

X: Yes

## B-type

Model No.	Chain stay angle	Top swing Side swing (E-type)	Down swing Side swing (D-type)
		For double	
		66°- 69°	
	Gear combination	<a href="#">FD-M677-E</a> <a href="#">FD-M617-E</a> <a href="#">FD-M618-E</a>	<a href="#">FD-M677-D</a> <a href="#">FD-M617-D</a> <a href="#">FD-M618-D</a>
FC-M627-B2	36-22T	X	X

# 9-speed triple FC-FD compatibility [MTB] C-445

		Speed		9-speed			
		Chain line		50 mm			
		Chainstay angle		66° - 69°			
		Top swing FD		-	FD-M770-E	FD-M4000-TS6 <a href="#">FD-M3000-TS6</a>	FD-M770 FD-M590-6 FD-T4000-TS6 <a href="#">FD-T3000-TS6</a> FD-M390-6 FD-M370-6
Chain line	BB Model No. / Structure	Down swing FD		FD-M771 FD-M771D FD-M661D	-	<a href="#">FD-M4000-DS6</a>	FD-M591-6 FD-M371-6
50 mm	2pc type FC	FC-M4050	40-30-22T	-	-	X	-
		FC-M770	44-32-22T	X	X	-	X
		FC-M542					
		FC-M543K					
		FC-M590					
		FC-M591	48-36-26T	-	-	-	X
		FC-T4060					
		FC-M543K					
		FC-M590					
		FC-M591	44-32-22T	X	X	-	X
	FC-M4060						
	FC-M521						
	FC-T4010						
	BB-ES25 (please refer chart as below for detailed combination)	FC-M521	44-32-22T	X	X	-	X
	BB-ES25 126 (-K)	<a href="#">FC-T3010-8</a>					
		FC-M391-8					
	BB-UN26 LL123 (-K)	FC-M391					
		<a href="#">FC-T3010</a>					
		FC-M371					
	BB-ES25 118 (-E)	FC-M4000	40-30-22T	-	-	X	-
<a href="#">FC-M3000-8</a>							
BB-UN26 LL113 (-E)	<a href="#">FC-M3000</a>	44-32-22T	X	X	-	X	
BB-ES25 118 (-E)	FC-M430-8						
BB-UN26 LL113 (-E)	FC-M430						
BB-ES25 (please refer chart as below for detailed combination)	FC-M521	48-36-26T	-	-	-	X	
	BB-ES25 126 (-K)						FC-T4010
BB-UN26 LL123 (-K)							<a href="#">FC-T3010-8</a>
	FC-M391-8						
	FC-M391						
BB-UN26 LL123 (-K)	<a href="#">FC-T3010</a>	48-36-26T	-	-	-	X	
	FC-M371						


		Speed		9-speed						
		Chain line		50 mm						
		Chainstay angle		63° - 66°						
		Top swing FD		FD-M4000-TS3 <a href="#">FD-M3000-TS3</a>	FD-M772A FD-T660A-3 FD-M590-3 FD-T4000-TS3 <a href="#">FD-T3000-TS3</a> FD-M390-3 FD-M370-3					
Chain line	BB Model No. / Structure	Down swing FD		<a href="#">FD-M4000-DS3</a>	FD-M773 FD-T661-3 FD-M591-3 FD-T4000-DS3 FD-M371-3					
50 mm	2pc type FC	FC-M4050	40-30-22T	X	-					
		FC-M770	44-32-22T	-	X					
		FC-M542								
		FC-M543K								
		FC-M590								
		FC-M591								
		FC-T4060	48-36-26T	-	X					
		FC-M543K								
		FC-M590								
		FC-M591								
		FC-M4060								
		FC-T4060	BB-ES25 (please refer chart as below for detailed combination)	FC-M521	44-32-22T	-	X			
	BB-ES25 126 (-K)	FC-T4010								
		<a href="#">FC-T3010-8</a>								
	BB-UN26 LL123 (-K)	FC-M391-8								
		FC-M391								
		<a href="#">FC-T3010</a>								
		FC-M371								
	BB-ES25 118 (-E)	FC-M4000		40-30-22T				X	-	
		<a href="#">FC-M3000-8</a>								
BB-UN26 LL113 (-E)	<a href="#">FC-M3000</a>	44-32-22T		-				X		
BB-ES25 118 (-E)	FC-M430-8									
BB-UN26 LL113 (-E)	FC-M430	BB-ES25 (please refer chart as below for detailed combination)		48-36-26T				-	X	
BB-ES25 126 (-K)	FC-M521									
	FC-T4010									
BB-UN26 LL123 (-K)	<a href="#">FC-T3010-8</a>									
	FC-M391-8									
	FC-M391									
	<a href="#">FC-T3010</a>									
			FC-M371							


X: Yes

### FC-M521 / BB-ES25 combination

		MTB (without chain case) Trekking (with chain case) E-type	Trekking (with chain case)	E-type
BB shell width	68 mm	ABBES25AKB21W (use with 1.8 mm spacer) / ABBES25B21	ABBES25AKB21W (use without 1.8 mm spacer) / ABBES25AKB21	ABBES25EB21
	73 mm	ABBES25C21	-	ABBES25EC21

## 8,7,6-speed triple FC-FD compatibility [MTB] C-446

		Speed		8,7-speed					
		Chain line		50.0 mm		47.5 / 47.5+t mm / 50.0 mm		47.5 / 47.5+t mm / 50.0 mm	
		Chainstay angle		66°-69°	63°-66°	66° - 69°	63° - 66°	66° - 69°	63° - 66°
		Top swing FD		FD-M410-E	FD-M410-E	FD-M360-6 FD-M310-6 FD-TX800-TS6	FD-M360-3 FD-M310-3 FD-TX800-TS3	FD-M190A-6	FD-M190-3
Chain line	BB Model No. / Structure	Down swing FD		-	-	FD-M313-6	FD-M313-3	-	-
50 mm	BB-ES25 (-K) 126 (K)	FC-M361-8	42-32-22T	-	-	X	X	-	-
		FC-M311-8		-	-	X	X	-	-
	BB-UN26 (-K) LL123 (-K) <a href="#">BB-UN100</a> (-K) LL123 (-K)	FC-M361 FC-M311 FC-TX801	42-32-22T	-	-	X	X	-	-
		48-38-28T	-	-	X	X	-	-	
47.5+t mm	BB-UN26 (-E) LL123 (-E)  BB-UN26 (-K) D-NL (-K) <a href="#">BB-UN100</a> (-K) D-NL (-K)	FC-M361 FC-M311	42-32-22T	X	X	-	-	-	-
		<a href="#">FC-TY701</a> FC-M171-A FC-M171 FC-M131	42-34-24T	-	-	-	-	X	X
 47.5 mm	BB-UN26 D-NL <a href="#">BB-UN100</a> D-NL	<a href="#">FC-TY701</a> FC-M171-A FC-M171 FC-M131	42-34-24T	-	-	-	-	X	X
		48-38-28T	-	-	X	X	-	-	

		Speed		8,7-speed		7,6-speed			7,6-speed		
		Chain line		47.5 / 47.5+t mm / 50.0 mm		47.5 / 47.5+t mm / 50.0 mm		47.5 / 47.5+t mm / 50.0 mm		47.5 mm	
		Chainstay angle		66°-69°	63°-66°	66° - 69°	63° - 66°	66° - 69°	63° - 66°	66° - 69°	66° - 69°
		Top swing FD		FD-M191-6	FD-M191-3	FD-TX50-6 FD-TY10*	FD-TX50-3	FD-TX51-6	FD-TX51-3	FD-TZ30	FD-TZ31
Chain line	BB Model No. / Structure	Down swing FD		-	-	-	-	-	-	-	
50 mm	BB-ES25 (-K) 126 (K)	FC-M361-8	42-32-22T	-	-	-	-	-	-	-	
		FC-M311-8		-	-	-	-	-	-	-	
	BB-UN26 (-K) LL123 (-K) <a href="#">BB-UN100</a> (-K) LL123 (-K)	FC-M361 FC-M311 FC-TX801	42-32-22T	-	-	-	-	-	-	-	
		48-38-28T	X	X	-	-	X	X	-	-	
47.5+t mm	BB-UN26 (-K) D-NL (-K) <a href="#">BB-UN100</a> (-K) D-NL (-K)	<a href="#">FC-TY701</a> FC-M171-A FC-M171 FC-M131	42-34-24T	-	-	X	X	-	-	-	
		48-38-28T	X	X	-	-	X	X	-	-	
 47.5 mm	BB-UN26 D-NL <a href="#">BB-UN100</a> D-NL	<a href="#">FC-TY701</a> FC-M171-A FC-M171 FC-M131	42-34-24T	-	-	X	X	-	-	X	
		48-38-28T	X	X	-	-	X	X	-	X	

\* FD-TY10 L size is designed for 50 mm chain line.

X: Yes

### NOTE

When using the front derailleur designed for a 7-speed system on an 8-speed system, the front derailleur plate may interfere with the chain even if its installed correctly.

## Front derailleur and crankset

The allowable combinations of front derailleurs depend on the difference in the number of teeth of the gears and the shape of the front derailleur plate.

If the conditions given below are not satisfied, then the desired shiftability may not be obtained.

$\begin{aligned} &FC (\text{top gear}) - (\text{low gear}) \leq FD (\text{top and low capacity}) \\ &FC (\text{top gear}) - (\text{middle gear}) \leq FD (\text{allowance of difference in teeth number between} \\ &\quad \text{top and middle}) \end{aligned}$
--

Front derailleurs and the number of teeth for corresponding cranksets are given in the chart.

## Front derailleur and chain line (Tourney)

The Shimano line-up for front derailleurs and the chain lines they support are given in the chart below.

		28.6 mm (S)	31.8 mm (M)	34.9 mm (L)
Chain line (mm)	FD-TY10	$\phi 47.5$		$\phi 50.0$
	FD-TZ31	$\phi 47.5$		-
	FD-TZ30			

## Crankset, bottom bracket and chain line [MTB]

In order to use SIS to its full extent, the required correct chain line, along with the crankset and bottom bracket required to obtain that, are given in the chart below.

## Separate type FC-BB compatibility [MTB] C-450

Speed	Series	Crankset				Bottom bracket Model No.	Chain line and axle mark				
		Model No.	Type of crank				47.5 mm	50.0 mm	52.5 mm	47.5+t mm	
			OCTALINK	Square	Chain case						
10	SHIMANO	FC-M523	X	-	-	BB-ES25	-	118	-	-	
		FC-M522	X	-	-	BB-ES25	-	113	-	-	
9	SHIMANO	FC-M521	X	-	X*	BB-ES25-AK	-	**	-	-	
	ALIVIO	FC-M4000	X	-	-	BB-ES25(-E)	-	118(-E)	-	-	
		FC-T4010	X	-	X*	BB-ES25(-K)	-	126(-K)	-	-	
		FC-M430-8	X	-	-	BB-ES25(-E)	-	118(-E)	-	-	
		FC-M430	-	X	-	BB-UN26(-E)	-	LL113(-E)	-	-	
	Acera	<a href="#">FC-M3000-8</a>	X	-	-	BB-ES25(-E)	-	118(-E)	-	-	
		<a href="#">FC-M3000</a>	-	X	-	BB-UN26(-E)	-	LL113(-E)	-	-	
		<a href="#">FC-T3010-8</a>	X	-	X*	BB-ES25(-K)	-	126(-K)	-	-	
		<a href="#">FC-T3010</a>	-	X	X*	BB-UN26(-K)	-	LL123(-K)	-	-	
		FC-M391-8	X	-	X*	BB-ES25(-K)	-	126(-K)	-	-	
		FC-M391	-	X	X*	BB-UN26(-K)	-	LL123(-K)	-	-	
	SHIMANO	FC-M371	-	X	X*	BB-UN26(-K)	-	LL123(-K)	-	-	
	8, 7	Acera ALTUS	FC-M361	-	X	X*	BB-UN26(-K)	-	LL123(-K)	-	-
			FC-M311	-	X	X*	BB-UN26(-K)	-	LL123(-K)	-	-
Tourney		FC-TX801	-	X	X*	<a href="#">BB-UN100(-K)</a>	-	LL123(-K)	-	-	
8, 7, 6	SHIMANO	<a href="#">FC-TY701</a> FC-M131 FC-M171 FC-M171-A	-	X	X	<a href="#">BB-UN26(-K)</a> <a href="#">BB-UN100(-K)</a>	D-NL(122.5)	-	-	D-NL(122.5)	

X: Yes

\*: Chain case stay thickness should be 1.5 mm to 2.1 mm.

\*\* : Please refer to [C-445](#) for detailed combination.

### NOTE

If using a chain case, select a BB-○○○○ (-K) / -K bottom bracket.

If using an E-type front derailleur, select a BB-○○○○ (-E) bottom bracket.

FC-M521: Use 121AK with 1.8 mm spacer if no chain case used.

## Separate type FC-BB compatibility [Capreo] C-451

The combinations of the crankset and the bottom bracket to obtain proper chain line, which are necessary for the SIS (= Shimano indexed system) to function well, are presented in the following chart.

Model No.	Crankset			Bottom bracket Model No.	Chain line and axle mark			
	Type of crank				47.5 mm	50.0 mm	52.5 mm	47.5+t mm
	OCTALINK	Square	Chain case					
FC-F800	-	X	X	BB-UN26	MM110	LL113	YL117	-
				BB-UN26-K	-	-	-	*117.5

X: Yes

### NOTE

This specification can be used without the chain case as 52.5 mm chain line.

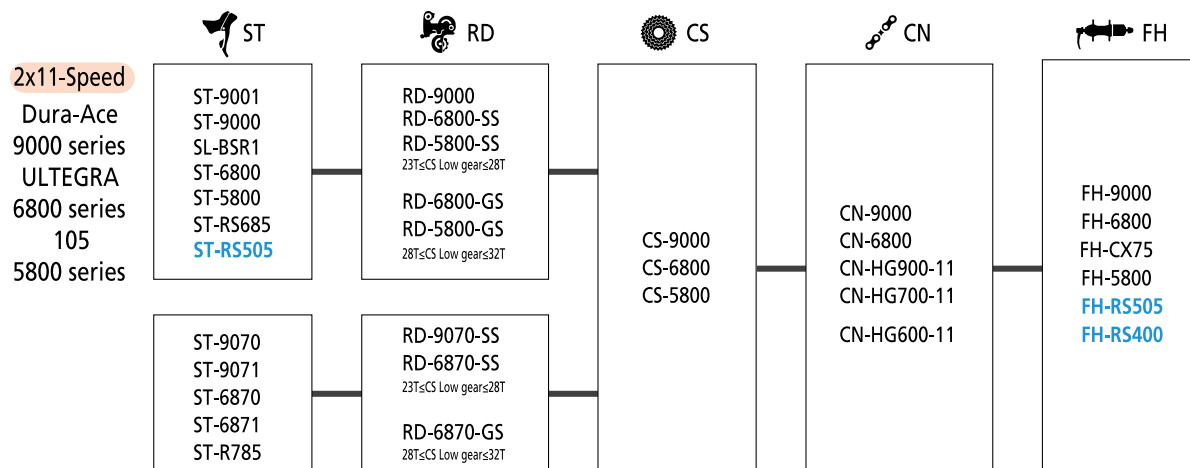
In that case, a space is to be left between the shell and the adapter on the left side of the BB, but there is no problem in actual use.

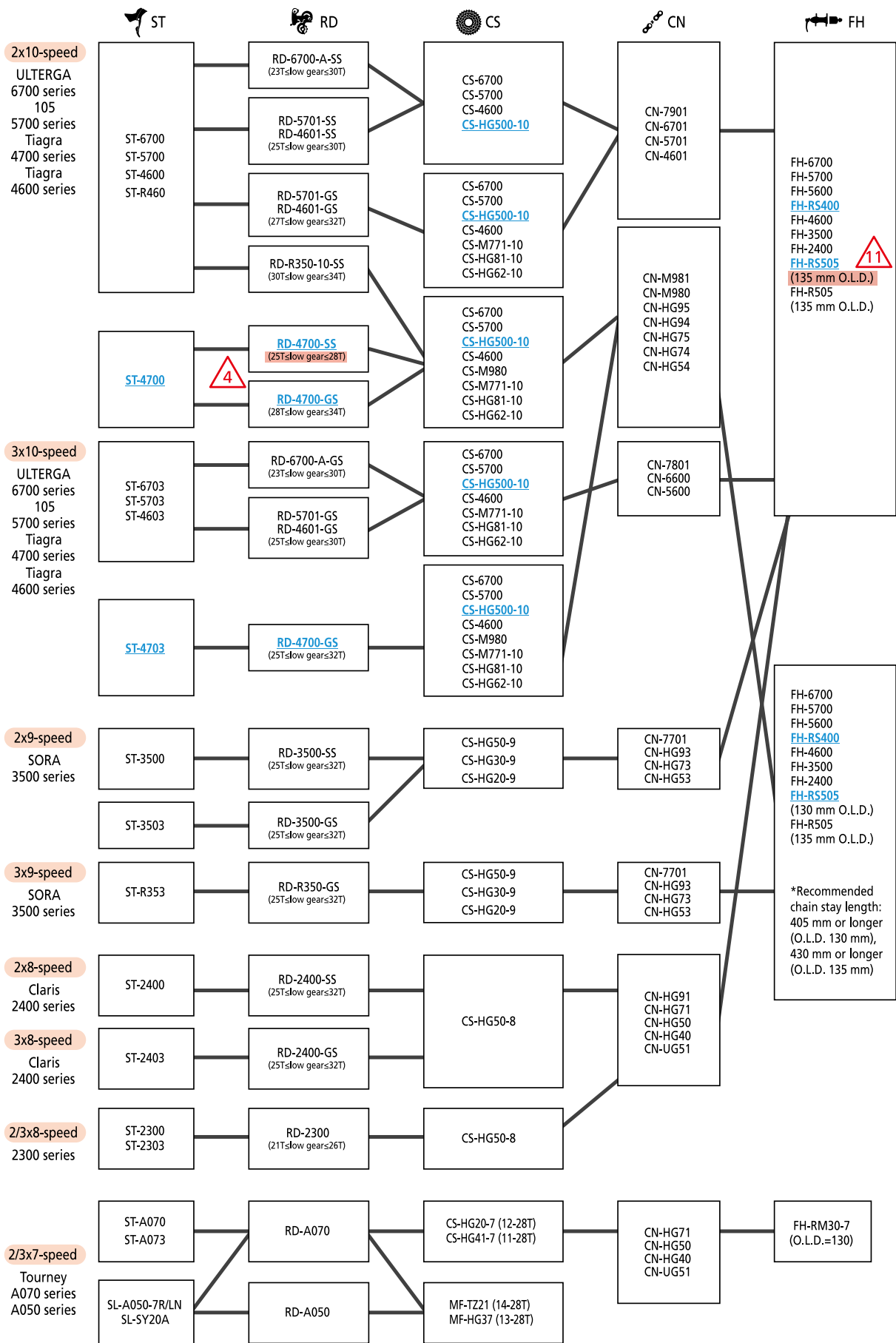
## Chain, chainring and cassette sprocket [MTB]

The allowable combinations are given in the chart below. These chains are available in order to match the type of drivetrain. Select the combination you desire after checking the chart below.

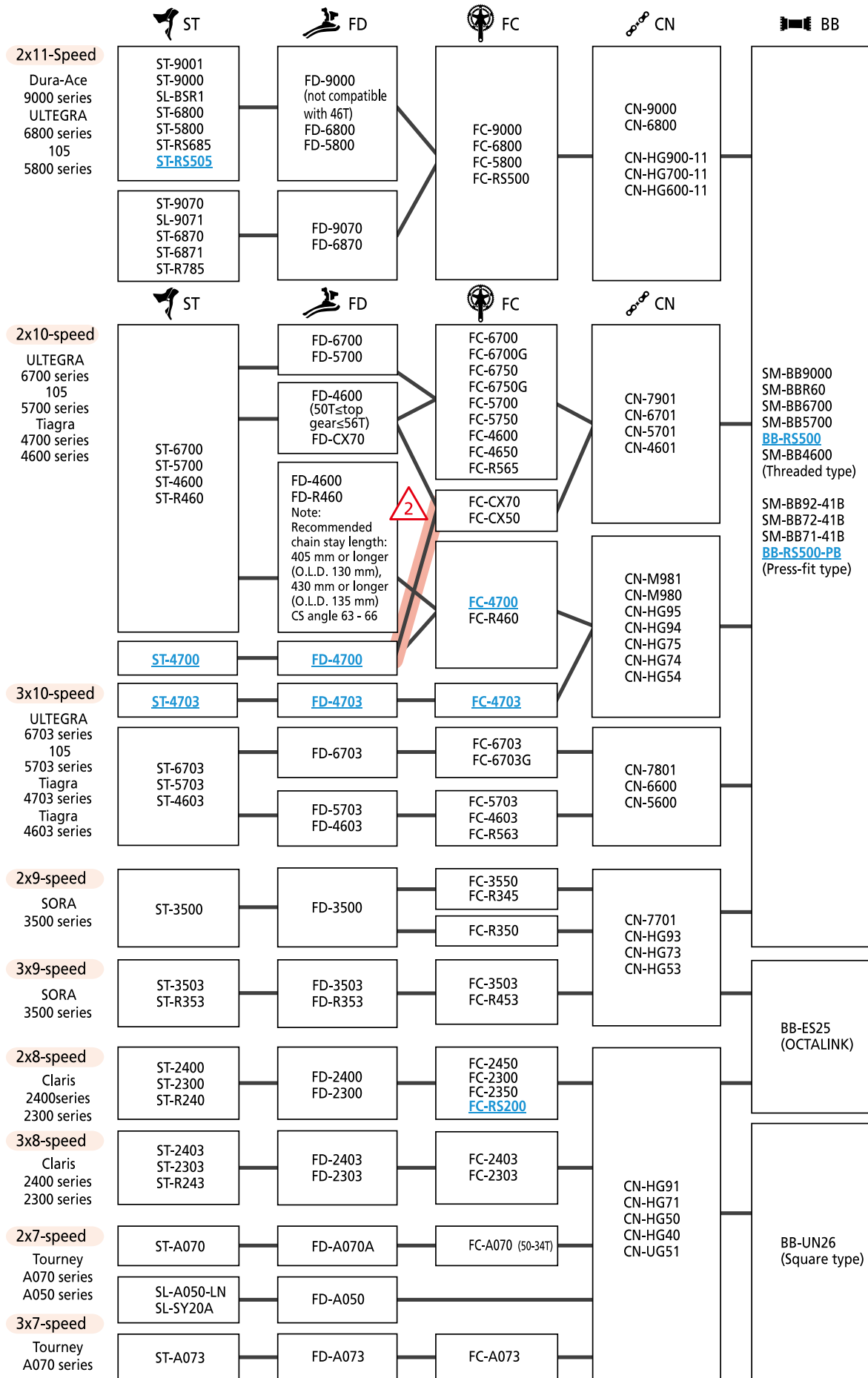
		9-speed		7, 8-speed	
		CS	FC	CS	FC
FC / CS		CS-M770 CS-HG80-9 CS-HG50-9 CS-HG400-9 CS-HG300-9 CS-HG200-9	FC-M770 FC-M665 FC-M591 FC-M590 FC-M543-K FC-M542 FC-M521 FC-M4060 FC-M4050 FC-T4060 FC-M4000 FC-T4010 FC-M430 FC-M430-8 <a href="#">FC-M3000-8</a> <a href="#">FC-M3000</a> <a href="#">FC-T3010-8</a> <a href="#">FC-T3010</a> FC-M391 FC-M391-8 FC-M371 <a href="#">FC-M351</a>	CS-HG51-8 CS-HG41-8 CS-HG31-8 CS-HG200-8 CS-HG41-7 CS-HG20-7	FC-M361 FC-M311 FC-M311-8 FC-TX801 FC-M171 FC-M171-A FC-M131
CN	9-speed CN-HG93 CN-HG73 CN-HG53	X	X	-	-
	CN-HG91 CN-HG71 CN-HG40	-	-	X	X

## Rear drivetrain compatibility [ROAD]

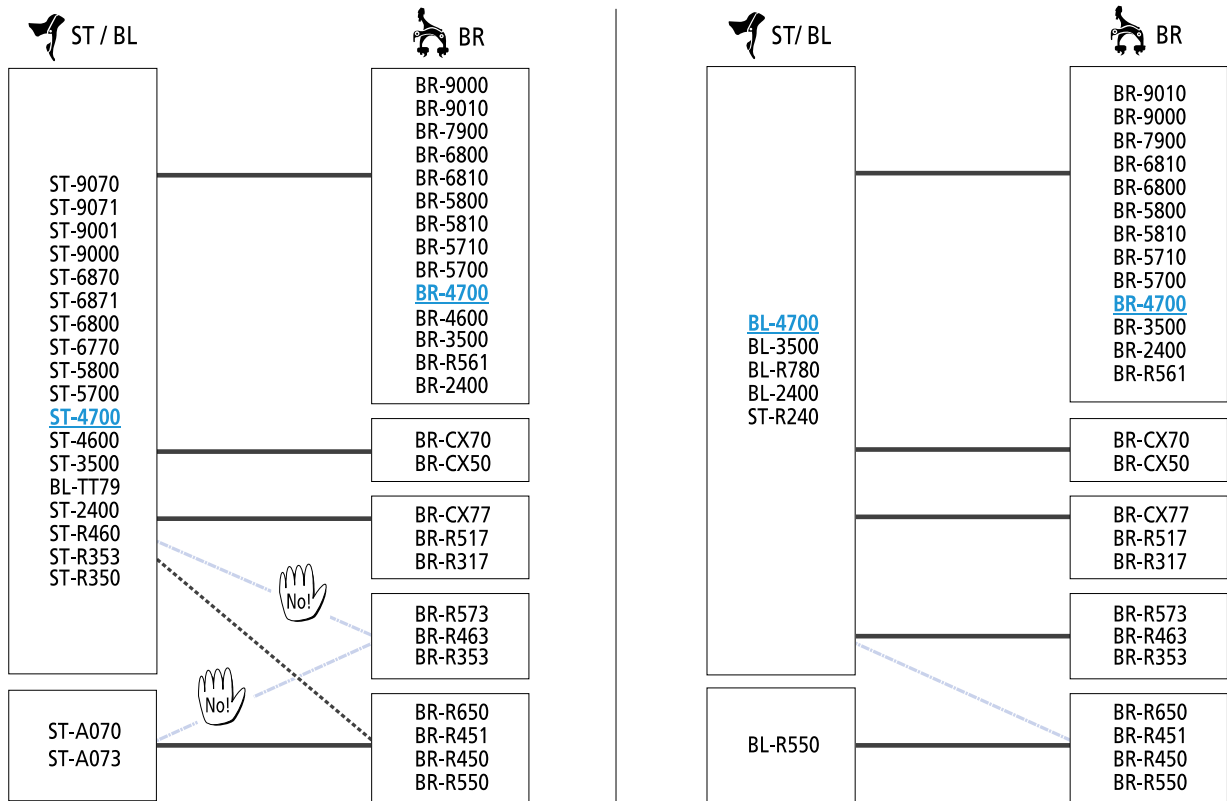




# Front drivetrain compatibility [ROAD]



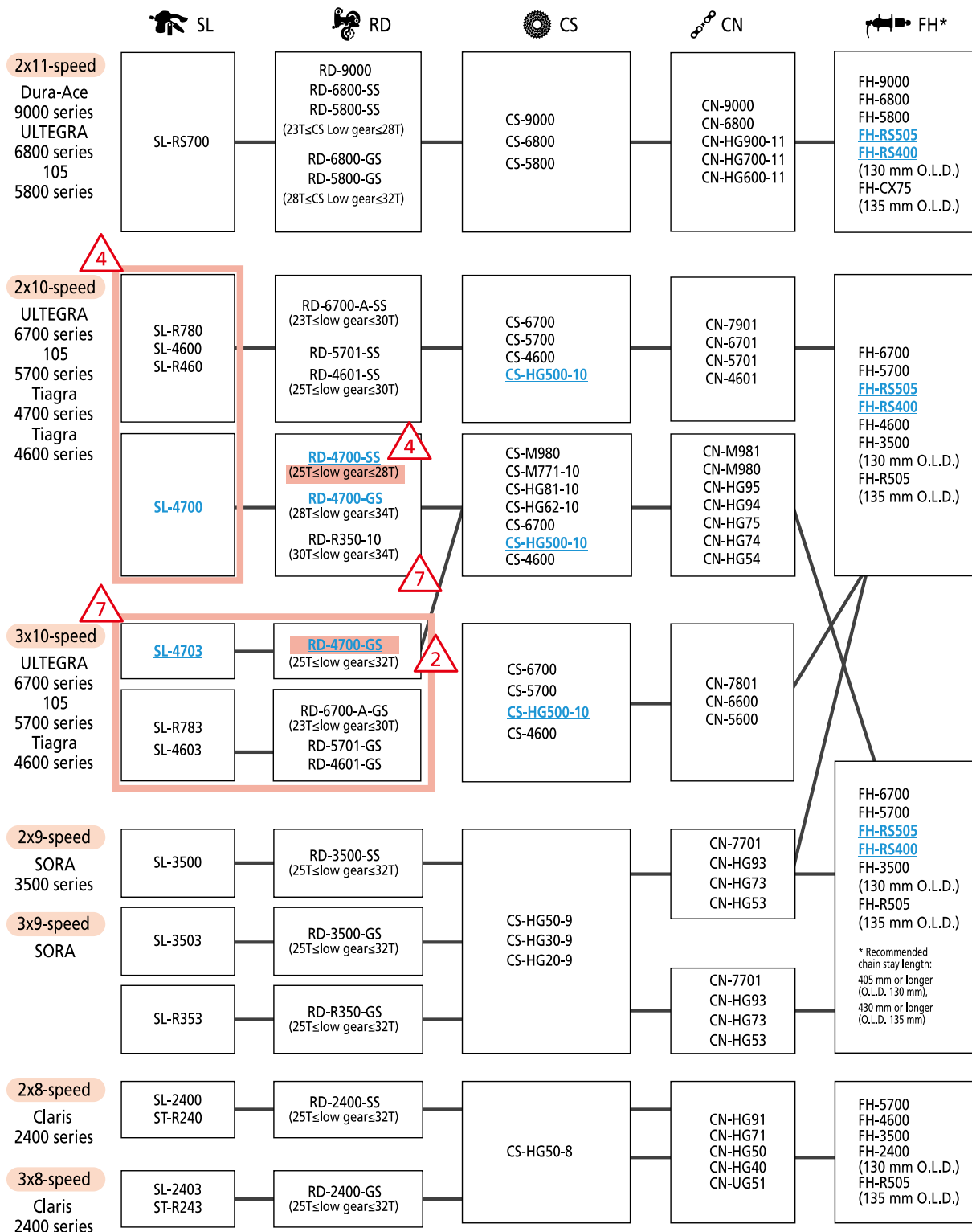
# Brake systems compatibility [ROAD]



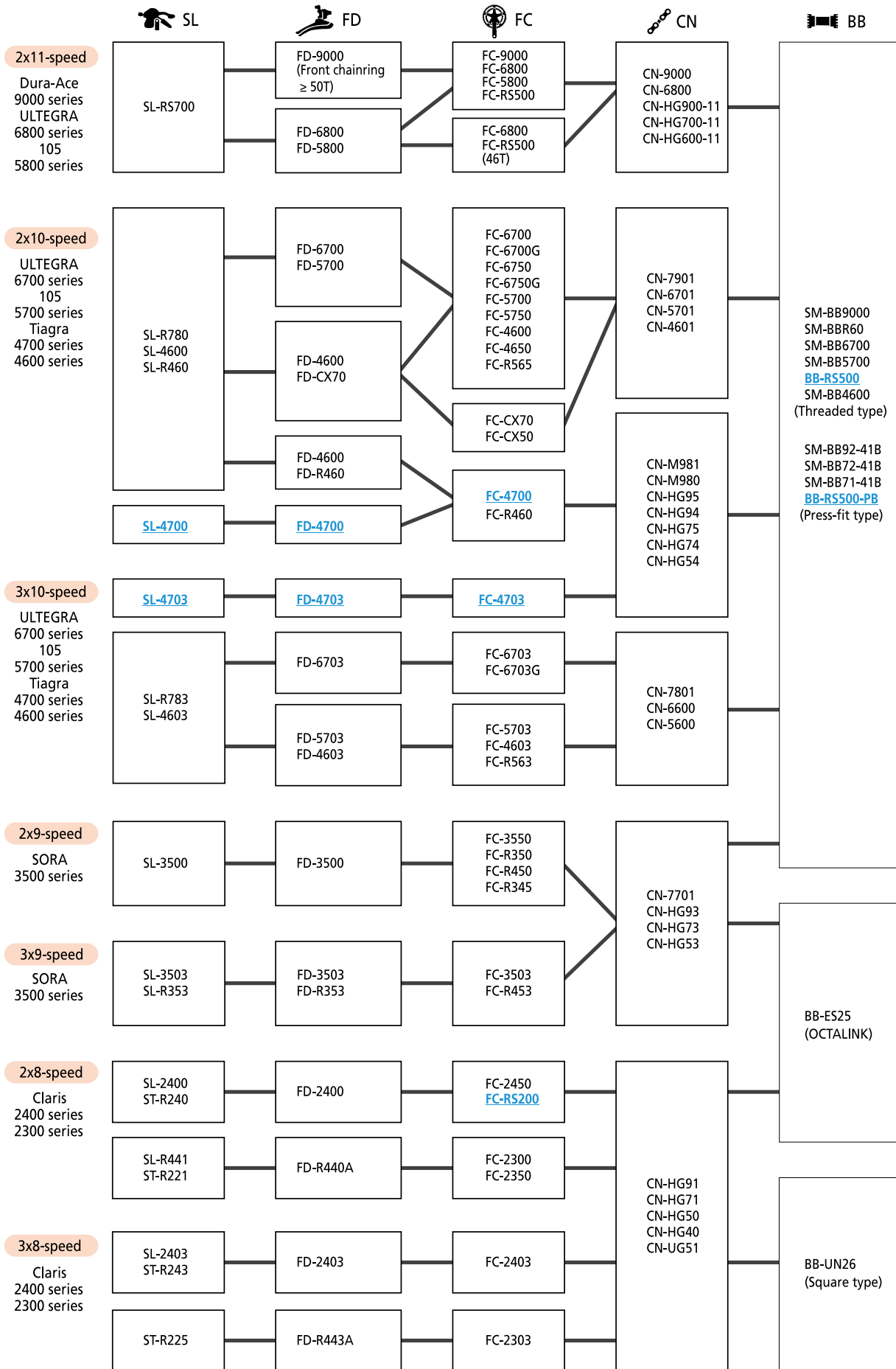
----- : Braking power is slightly less than standard combination.

: The "NO!" symbols indicate combinations that should not be used under any circumstances.

## Rear system C-458



# Front system C-459



## Disc brake caliper and Rotor compatibility

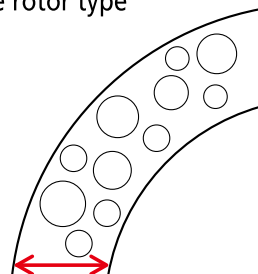
C-461

Caliper	Pad material	Type	Rotor size			
			203 mm (L)	180 mm (M)	160 mm (S)	140 mm (SS)
BR-M9000 BR-M9020 <a href="#">BR-M8000</a> BR-M785 BR-M675 BR-M615	Metal / Resin	Narrow	SM-RT99-L SM-RT86-L SM-RT81-L SM-RT68-L SM-RT76-L SM-RT64-L SM-RT66-L	SM-RT99-M SM-RT86-M SM-RT81-M SM-RT68-M SM-RT76-M SM-RT64-M SM-RT66-M	SM-RT99-S SM-RT86-S SM-RT81-S SM-RT68-S SM-RT76-S SM-RT64-S SM-RT66-S	<a href="#">SM-RT99-SS</a> <a href="#">SM-RT81-SS</a>
BR-M820 BR-M640	Metal / Resin					
BR-S700	Resin					
BR-T675 BR-T615 BR-M4050 BR-M447 BR-M446 BR-M416-A <a href="#">BR-M3050</a> BR-M395 BR-M375 BR-M355 BR-TX805 BR-R317	Resin	Wide	-	SM-RT20-M SM-RT30-M SM-RT54-M SM-RT56-M	SM-RT20-S SM-RT30-S SM-RT54-S SM-RT56-S	-
<a href="#">BR-RS805</a> BR-R785 BR-RS785 <a href="#">BR-RS505</a>	Metal / Resin	Narrow	-	-	SM-RT99-S SM-RT86-S SM-RT81-S SM-RT68-S	<a href="#">SM-RT99-SS</a> <a href="#">SM-RT81-SS</a>
BR-CX77 BR-R517 BR-R317	Metal / Resin	Narrow	-	-	SM-RT98-S SM-RT86-S SM-RT81-S SM-RT76-S SM-RT75-S SM-RT64-S SM-RT66-S	-

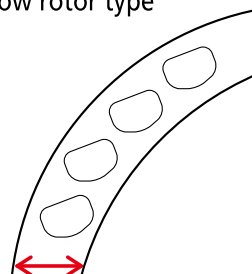
### NOTE

1. Suitable mount adapter is necessary according to your frame mount style.
2. SM-RT56 / SM-RT54 / SM-RT30 / SM-RT20 are compatible with Resin pad caliper specification only. If use with metal pads, rotor will be easily damaged.
3. When using 140mm rotor, braking power is less than 160 mm, please confirm the power is enough for your purpose. 140 mm rotor is recommended for rear use only.
4. Durability of B-type pad become shorter when the pad is used with narrow type rotor.
5. Narrow type 2piece rotor are not compatible to caliper for Wide type rotor because of interference.
6. Please refer C-192 for BR models compatible with B / E-type pad.

Wide rotor type



Narrow rotor type



## Interference between brake caliper and adapter of rotor

Do not use these combinations for a reason of interference between brake caliper and adapter of rotor.

Caliper	Rotor			
	140 mm (SS)	160 mm (S)	180 mm (M)	203 mm (L)
BR-T675 BR-T615 BR-M4050 BR-M447 BR-M446 <a href="#">BR-M3050</a> BR-M395 BR-M355	SM-RT99 <a href="#">SM-RT81</a>	SM-RT99 SM-RT86 <a href="#">SM-RT81</a> SM-RT76	SM-RT99	SM-RT99 SM-RT86 <a href="#">SM-RT81</a> SM-RT76

## Combination chart (Mechanical Disc)

C-462

### Mechanical Disc Brake combination chart C-463

In order to realize the best performance, we recommend that the following combination be used.

Model No.	Mount type	Brake lever	Rotor	Pad
BR-M416-A BR-M375 BR-TX805	*	V-BRAKE BL (2 finger)	SM-RT54 SM-RT56 SM-RT30 SM-RT20 for resin pad only	B01S Resin
BR-R517	*	Road lever**	SM-RT64 / 66	G01S Resin
BR-R317	*	Road lever**	SM-RT54 / 56	G01S Resin
BR-CX77	*	Road lever**	SM-RT81 / 86	G01A Resin / G03Ti Metal

\* Front mount: International standard / Post mount Rear mount: International standard

\*\* For BL-R780 / 4600 / 5700 / 4600









### Mechanical Disc brake and Brake lever compatibility C-464

Model No.	Brake lever type		
	2 finger	3,4 finger	3,4 finger w / modulator w / SM-PM50
BR-M416-A	X	-	X
BR-M375	X	-	X
BR-TX805	X	-	X

## Compatibility between brake systems

Depending on the brake and brake lever combination to be used, the relationship between the input at the brake lever and the actual braking force output at the wheels is very easily affected.

Be very careful when combining a brake and brake lever. Incorrect combinations can cause accidents or insufficient braking forces due to improper cable strokes. Be sure to carefully consult the chart below and select the brake and the matching brake lever.

		V-BRAKE		Roller Brake	
		BR-T780 BR-MX70 BR-R353 BR-R463 BR-R573 BR-T670 BR-T610 BR-T4010 BR-T4000	With power modulator model BR-T780 with SM-PM70 BR-T670 with SM-PM70 BR-T610 with SM-PM70 BR-T4010 with SM-PM40 BR-T4000 with SM-PM40 BR-R353 with SM-PM40 BR-R463 with SM-PM40 BR-R573 with SM-PM70	BR-IM86 BR-IM81	<a href="#">BR-C6000</a> <a href="#">BR-C3010</a> <a href="#">BR-C3000</a>
V-BRAKE Levers (2-finger)					
ST-M4000 ST-EF41 ST-TX800 ST-M370 ST-M310 ST-EF65 ST-EF51 ST-EF51-A	BL-T610 BL-M571 BL-T4000 BL-T3000 BL-MX70	X	X	NOTE	NOTE
V-BRAKE Levers (3-finger)					
ST-T4000 <a href="#">ST-T3000</a>	BL-T780 BL-T611 BL-T670 BL-T780-B BL-T4010 BL-T670-B		X		
V-BRAKE Levers with switch					
ST-R240	BL-4600 BL-R780 <a href="#">BL-4700</a> BL-3500 BL-2400	X	X		
Brake lever with switch					
ST-M310 (4-finger) SB-7545 ST-EF65 (4-finger) ST-EF51 (4-finger) ST-EF51-A (4-finger) SB-8520 ST-8520	BL-IM45 BL-IM65 BL-IM60 BL-C6000		X	X	X
Levers for Roller Brake			X	X	X
	<a href="#">BL-C6010</a>		X	X	X

X: Yes



The "NO!" symbols indicate combinations that should not be used under any circumstances.

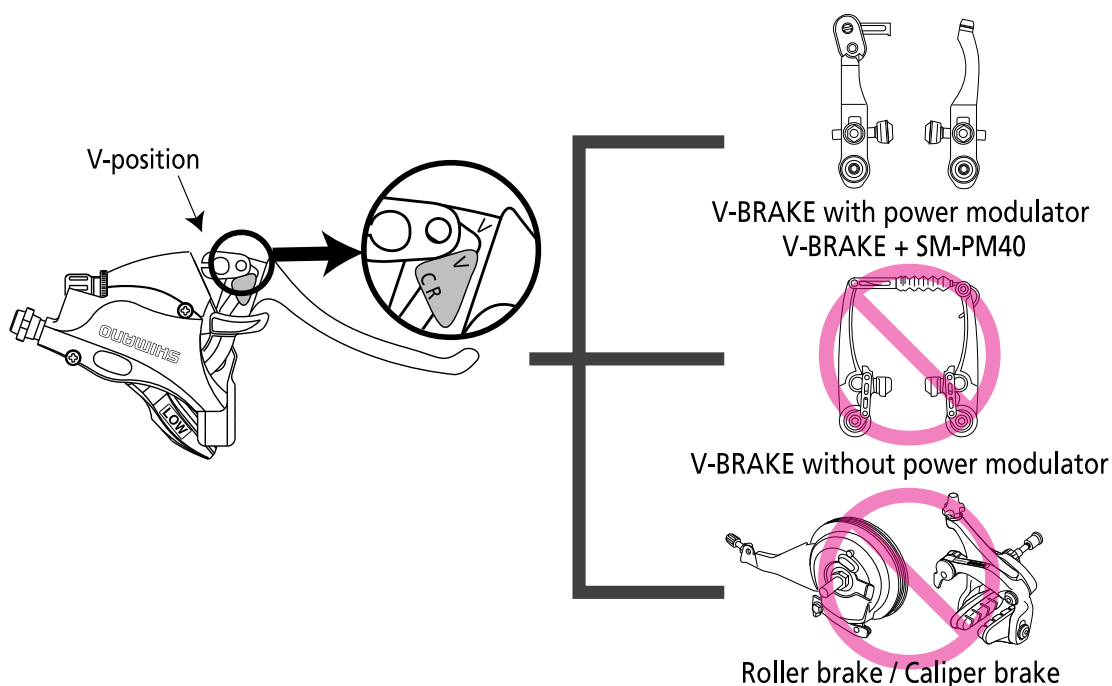
### NOTE

This combination will not provide the sufficient amount of braking force.

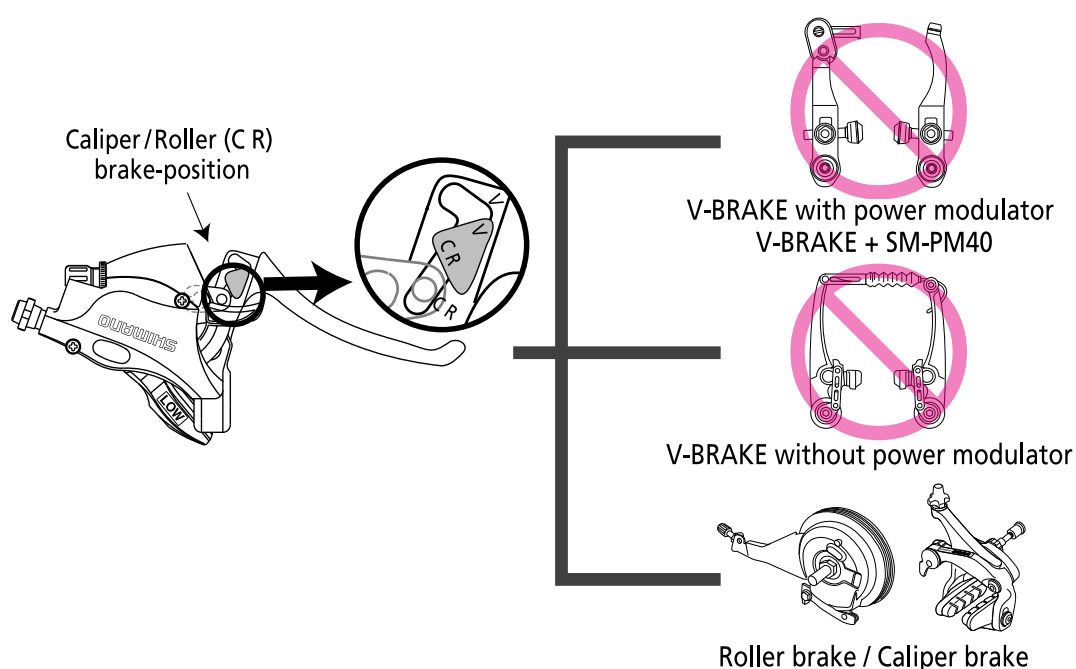
## Brake lever with switch compatibility

Four finger brake levers such as brake levers are equipped with a switch to change between the V-BRAKE with modulator mode (for example with SM-PM40) and the caliper brake or roller brake mode.

### For V-BRAKE (with power modulator) mode C-468



### For Caliper brake / Roller brake C-469



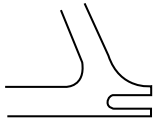

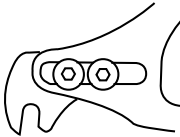

Some models can't be used with roller brake, please refer to [C-466](#) for more information.

#### WARNING

If the mode is not matched to the type of brake being used, this could result in inadequate or excessive braking power. Please proceed with caution when selecting the correct mode for the corresponding brake.

## Combinations of the rear gear, cassette sprocket, and crankset for designing the frame

C-471

Dropout design	A	Reversed (Track end, w / o RD mount)	
	B	Standard ( w / o RD mount )	
	C	Adjustable Disc brake mount / Eccentric BB	
	D	Vertical dropout ( Road bike type, w / RD mount )	
Compatibility	NR: Not recommend		
FC	E	E: FC-NX75	
	F	FC-S501 : Double guard spec	
	G	FC-S501 : Single guard spec	
CN	H	H: CN-NX10(1 / 2" x 1 / 8") or HG 85(1 / 2" x 3 / 32")	
	I	Super Narrow HG 9S	
	J	HG 85(1 / 2" x 3 / 32")	

Series	Speed	Brake type	Dropout design	Compatibility	CT use	CS / SM-GEAR	FC	CN	additional condition
ALFINE	11S / 8S	Disc use	A	NR	-	-	-	-	*1
			B	NR	-	-	-	-	
			C	OK	-	SM-GEAR	G	J	
			D	OK	CT-S500	CS-S500	F	I	
		V-BR use	A	OK	-	SM-GEAR	G	J	
			B	OK	-	SM-GEAR	G	J	
			C	OK	-	SM-GEAR	G	J	
			D	OK	CT-S500	CS-S500	F	I	
Nexus	8S / 7S / 3S (except 3D)	HRB / V-BR	A	OK	-	SM-GEAR	E G	H J	
			B	OK	-	SM-GEAR	E G	H J	
			C	OK	-	SM-GEAR	E G	H J	
			D	NR	CT-S500	CS-S500	F	I	*2
		D	OK	CT-S510	SM-GEAR	G	J		
		Coaster	A	OK	-	SM-GEAR	E G	H J	
			B	OK	-	SM-GEAR	E G	H J	
			C	OK	-	SM-GEAR	E G	H J	
	D		NR	CT-S500	-	-	-	*3	
	D	NR	CT-S510	-	-	-	*4		
	3D	Disc use	A	NR	-	-	-	-	*1
			B	NR	-	-	-	-	
			C	OK	-	SM-GEAR	G	J	
			D	OK	CT-S500	CS-S500	F	I	
		V-BR use	A	OK	-	SM-GEAR	G	J	
			B	OK	-	SM-GEAR	G	J	
C			OK	-	SM-GEAR	G	J		
D			OK	CT-S500	CS-S500	F	I		
D	OK	CT-S510	SM-GEAR	G	J				

\*1 Special disc brake mount design is needed.

\*2 without chain guard for hub gear side.

\*3 Structure of CT-S500 can't transfer chain tension by back pedalling.

\*4 Not enough force of fixation against back pedalling power.

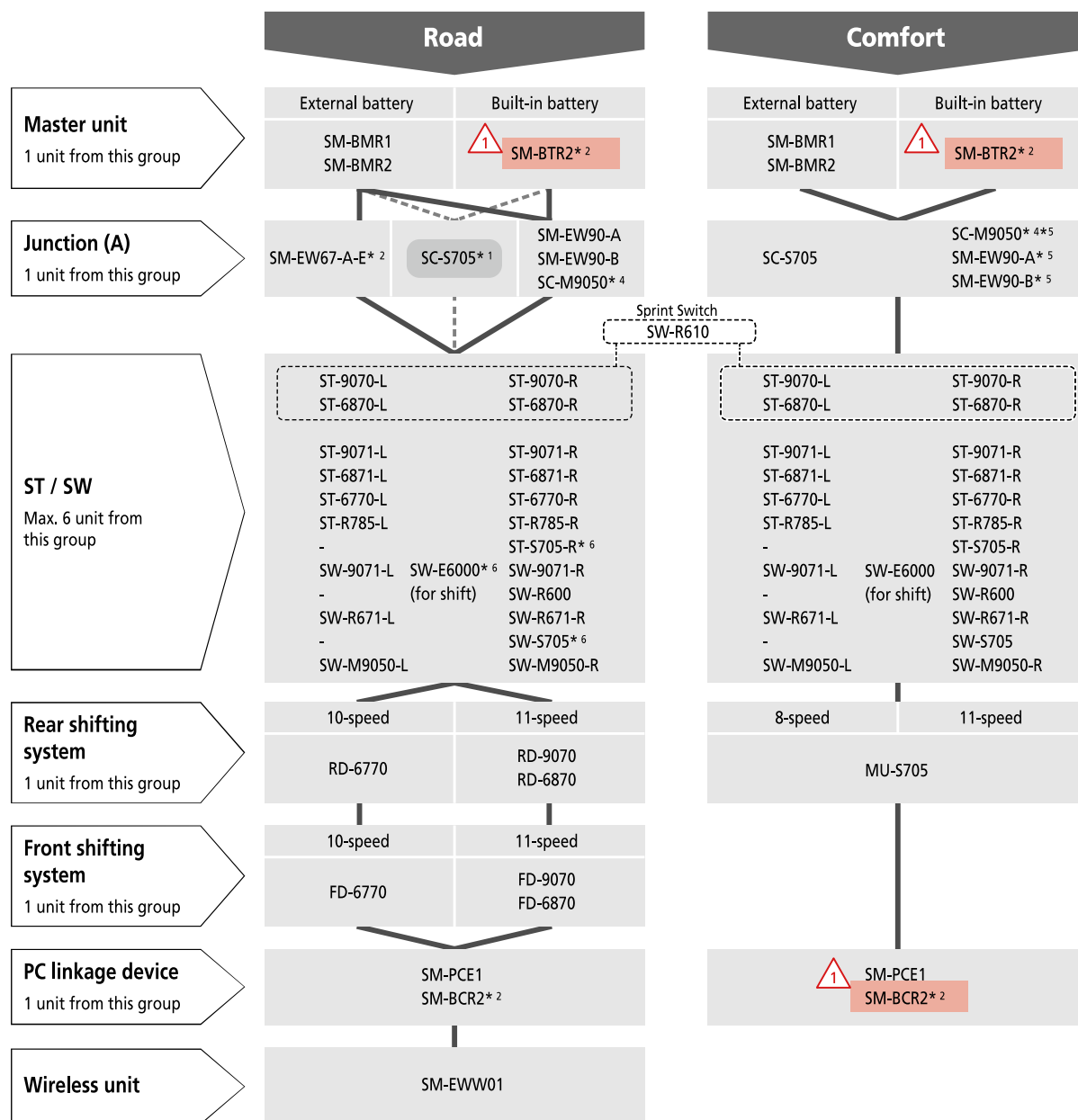
## E-tube compatibility chart

C-473

This chart shows E-tube device compatibility based on latest version firmware as of **Aug. 01, 2014**. Please see the following site for more E-tube information. <http://e-tubeproject.shimano.com/>

Master unit firmware for Road/ Comfort/ MTB category is ver. 3.0.

When any device which is not shown in this compatibility chart is connected, all components don't work.



### Limitation of function

#### \*1 SC-S705

- Front derailleur position will not appear on display
- Recovery from Rear derailleur protection function is not available
- Front / Rear derailleur adjustment mode is not available. Use E-tube project software
- SC-S705 has only 1 E-tube port for ST / SW
- SC-S705 may not turn on the display by front shifting switch

#### \*2 SM-BCR2 requires any device which has charging connector .

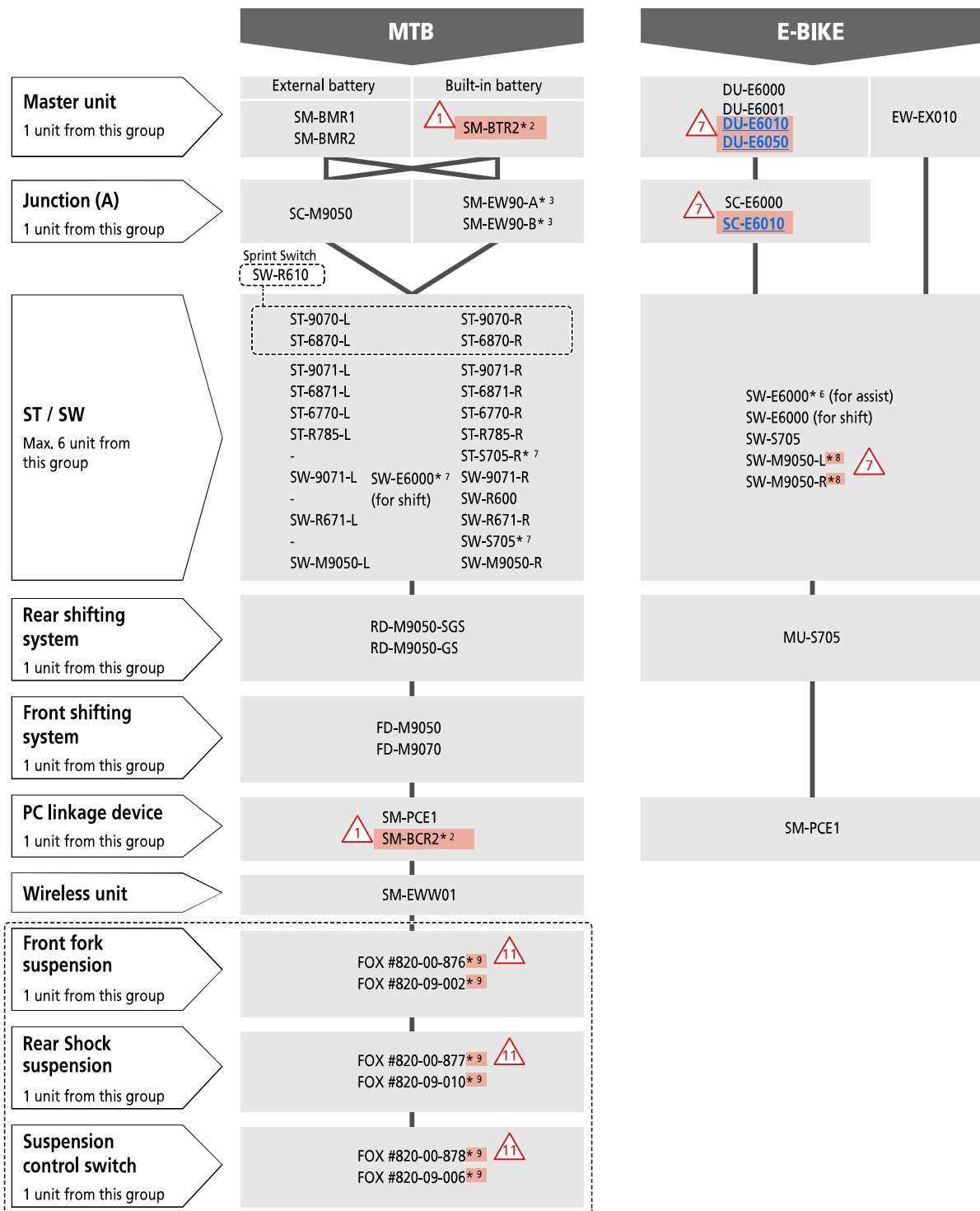
SM-EW67-A-E (Junction (A)) is not compatible with SM-BCR2 and SM-BTR2.

#### \*3 SC-M9050 is required for synchronized shift

#### \*4 Synchronized shift is available only in MTB category

#### \*5 Front / Rear derailleur adjustment mode is not available in "Comfort" category

#### \*6 Only for rear shifting



### Limitation of function

#### \*1 SC-S705

- Front derailleur position will not appear on display
- Recovery from Rear derailleur protection function is not available
- Front / Rear derailleur adjustment mode is not available. Use E-tube project software
- SC-S705 has only 1 E-tube port for ST / SW
- SC-S705 may not turn on the display by front shifting switch

#### \*2 SM-BCR2 requires any device which has charging connector .

SM-EW67-A-E (Junction (A)) is not compatible with SM-BCR2 and SM-BTR2.

#### \*3 SC-M9050 is required for synchronized shift

#### \*4 Synchronized shift is available only in MTB category

#### \*5 Front / Rear derailleur adjustment mode is not available in "E-BIKE" category

#### \*6 Available switch for SHIMANO STEPS assist control is SW-E6000 (for assist mode).

It doesn't work as assist control switch for other E-BIKE system via EW-EX010

#### \*7 Only for rear shifting (RD & IHG)

#### \*8 For manual shifting only

#### \*9 A designated control switch is needed operate the suspension system.

## User's manual / Dealer's manual

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Please note that Shimano provides 2 styles of service instructions for better service on our products. User manual, this comes together with product, which provide basic information for consumer basis. Dealer manual, this is available on our website for business customers which contains more technical and professional information on how to assemble and maintain the performance of Shimano products on bike.

We retain all service instruction and new formats of information are available at [si.shimano.com](http://si.shimano.com) for customers' convenience.