

KES

The Determination Method
for Specification of
Clutch Disc. Ass'y

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1. Scope of Application

This standard shall regulate the determination method for specification of clutch disc.ass'y for car.

2. Purpose

This standard shall have the purpose of standardization for specification design of clutch disc. Ass'y.

3. Definition of Terminology

Refer to KES M-I002(Determination method for clutch volume).

4. Design Procedure

4.1 Clutch transmission volume determination

Determine size of clutch disc facing and setting load of clutch cover.

Note : Detailed follows KES M-I002(Determination method of clutch volume).

4.2 Lay out determination

(1) Determination of shock absorption type of rotational direction

Table 1

Shock absorption type	Characteristic	Comparison
Spring type	<ul style="list-style-type: none">• Good endurance• Low cost• Bad shock absorption quality for adjustable velocity	Asterisk 2 Fig.1
Rubber type	<ul style="list-style-type: none">• Bad endurance• Good absorption quality for adjustable velocity• Larger stopper torque can be made by the same twist angle• Seperatiod from idle gear noise	Asterisk 2 Fig.2

(2) Width determination according to the size of disc facing, follows table 2.

Table 2

Unit : mm

Dimension			Tolerance			Thickness difference between facings
Outside diameter	Inside diameter	Thickness	Outside diameter	Inside diameter	Thickness	
118	85	2.8 3.0 3.2	±0.8	±0.8	±0.8	Max. 0.08
125	90					
132	95					
140	100					
150	100 110					
160	110					
170	110	3.2 3.5	±0.8	±0.8	±0.8	Max. 0.08
180	125					
184	127					
190	132					
200	130 140					
212	140 150					
(215)	(150)	3.2 3.5	±1.0	±1.0	±0.1	Max. 0.1
224	150 160					
(225)	(150)					
236	170 165					
(240)	(150)(160)					
250	160					
255	170	3.5 4.0	±1.2	±1.0	±0.1	Max. 0.1
(260)	(170)					
275	175 180					
300	175 180 190					

Table 2(Continued)

Dimension			Tolerance			Thickness difference between facings
Outside diameter	Inside diameter	Thickness	Outside diameter	Inside diameter	Thickness	
325	200 210		±1.2	±1.0		Max. 0.12
350	210 220	4.0 (4.5) 5.0				
380	220 240				±0.12	
400	236 250					
410	250 260 270					
430	250					
457	280	5.0(5.5)				

Note : () should be avoided as possible.

KS R 4017 (Clutch disc for car) applies in this standard.

4.3 Stopper torque determination (Ts)

It is the torque that twist spring (Or rubber) of clutch disc ass'y can be transmitted in the maximum. The more load of vehicle or the larger the maximum transmission torque of clutch, the more it should be. Basically it should be the same with clutch transmission torque or more.

Actual measurement data according to the sort of vehicle is given by table3.

Table 3

Unit : kg f • m

Name of vehicle	Sort of vehicle	Sort of engine	Ts	Main Sub	T _c (1)	T _s / T _c	Main Sub
Pride	Passenger car	Gasoline	14.3		12.5	1.14	
			13.1			1.05	

Table 3(Continued)

Name of vehicle	Sort of vehicle	Sort of engine	Ts	Main	T _c (°)	T _s / T _c	Main
				Sub			Sub
Capital	Passenger car	Gasoline	19		14.94	1.27	
Concord 1.8	Passenger car	Gasoline	22.5		19.52	1.15	
Concord 2.0	Passenger car	Gasoline	22.5		20.1	1.12	
Concord Diesel	Passenger car	Diesel	24.7		20.1	1.23	
			20.9			1.04	
Seres	Truck	Diesel	22.5		22.4	1.00	
			16.3			0.73	
Power bongo	Truck	Diesel	27		22.57	1.20	
Wit	Truck	Diesel	27		22.57	1.20	
Titan 1.4T	Truck	Diesel	32		24.9	1.29	
Titan 2.0T	Truck	Diesel	32		31.54	1.01	
Titan 2.5T	Truck	Diesel	37		37.4	0.99	
			36.3			0.97	
Boxa 4.5T	Truck	Diesel	46.5		40.5	1.15	
Besta	Mini bus	Diesel	23.9		20.1	1.19	
			23.5			1.17	

Note : T_c means maximum transmission torque of clutch.

4.4 Setting of twist characteristic

To absorb the shock of rotational direction softly, appropriate setting of twist intensity, twist angle and hysteresis torque is very important and difficult. Changed quantity of engine rotation and inertia moment of drive parts etc. are the factors to explain that theoretically, and are very difficult for calculation and actual measurement by present. For future study subject, simulation is the only method to predict.

For present situation, after it is set at random from table 4, complement and modification should be done based on check and estimated result for real vehicle.