

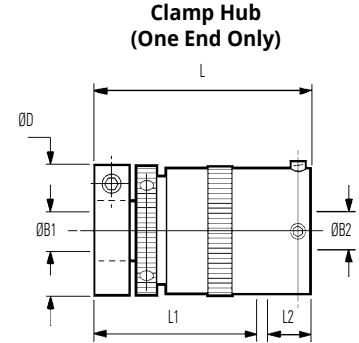
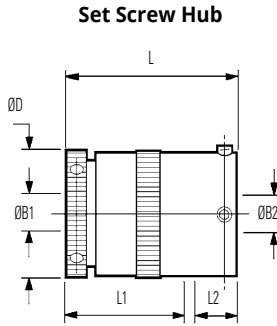
273  
411

# CLUTCHES

## Adjustable Friction Clutches

For Shaft to Shaft Connection

273  
411



Series Part No.	Hub Type	Max Drag Torque (in.lb)	Watts @20°C	Outside Dia.	Overall Length L	Min. / Max. Bore Dia. +0.0012/-0	Weight grams	Max. Shaft Penetration	
								@B1	@B2
273.25	Set Screw	4.7	7	1.02	1.42	6mm to 8mm	50	0.984	0.354
281.25	Set Screw	11.7	8.6	1.02	1.67	6mm to 8mm	60	1.220	0.354
281.48	Set Screw	26.6	18	1.89	3.27	8mm to 16mm	350	2.560	0.629
403.25	Clamp	4.7	7.0	1.02	1.73	6mm to 8mm	60	1.290	0.354
411.25	Clamp	11.7	8.6	1.02	1.98	6mm to 8mm	71	1.980	0.354

SIZE	AVAILABLE BORES												
	6mm	1/4"	5/16"	8mm	9mm	3/8"	10mm	12mm	1/2"	14mm	15mm	5/8"	16mm
25	.	.	.	.	.	.	.	.	.	.	.	.	.
48	.	.	.	.	.	.	.	.	.	.	.	.	.
Bore Code	22	24	27	28	30	31	32	35	36	38	40	41	42

### Materials

Housing & Adjuster Ring: Aluminum 2014 T6  
 Hub: Heat Treated Steel  
 Clutch Plates: Size 25, Heat Treated Steel, Size 48, Brass  
 Bearings: Sintered Bronze

### Performance

Max. Slipping Speed: 1000 Rpm  
 Max Backlash: 2°  
 Temp. Range: -10°C to + 80°C

# ADJUSTABLE FRICTION CLUTCHES

## Technical Notes

### Calculating for Power Dissipation

Given the slipping speed in rpm and the drag torque in inch-lbs, the following equation can be used for calculating the power dissipation in watts (W)

$$W = \frac{(\text{torque})(\text{rpm})}{84.08}$$

### Breakaway torque

After a period during which no slipping has taken place, the breakaway torque can be up to 2-1/2 times the set value.

### Torque Decay

There is an inverse relationship between clutch temperature and slipping torque. The slipping torque reduces from the set value as the power being dissipated causes the clutch temperature to rise. When slipping continuously, torque settles at approximately 70% of the value set on a new clutch and approximately 80% of the value set on a used clutch. This characteristic is not speed dependent.

### Speed Related Torque Fluctuations

Variations in slipping speed cause a momentary increase in the prevailing output torque. The clutches behave more consistently at high speed/low torque than low speed/high torque. High Speed in this instance starts at about 500rpm.

When applications call for sustained slipping, the housing temperature should be maintained below 80°C. Clutches mounted concentrically within pulleys, gear wheels, etc, will be more effective at dissipating heat generated during slipping