

Allowable Cutting Force & Workpiece Weight of CLAMPING MODULES

Ensure the cutting force and the workpiece weight are within the allowable level.

The values below are only the strength of the body of clamping modules.

The rigidity of the whole fixtures and the workpiece are not considered.

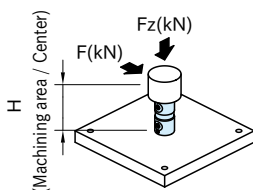
Use the values as a guide for setting appropriate machining conditions.

1 Module

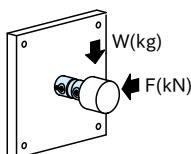
*) Prepare a locator when the workpiece gets big rotating force.

**) The use of Riser Screw is not recommended because allowable cutting force and allowable workpiece weight will be decreased.

Horizontal



Vertical

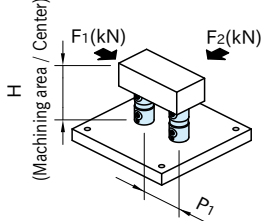


Part Number	Allowable Cutting Force		Allowable Workpiece Weight
	F(kN)	Fz(kN)	W(kg)
CP150-06025	50/H	1.5	50×100/H
CP151-06050	25/H		25×100/H
CP152-06032	25/H		25×100/H
CP150-08040	120/H	2.5	120×100/H
CP151-08080	70/H		70×100/H
CP152-08050	70/H		70×100/H
CP150-12063	250/H	7.5	250×100/H
CP151-12125	150/H		150×100/H
CP152-12080	150/H		150×100/H
CP150-16080	500/H	15	500×100/H
CP151-16160	300/H		300×100/H
CP152-16100	300/H		300×100/H
CP150-20100	1000/H	25	1000×100/H

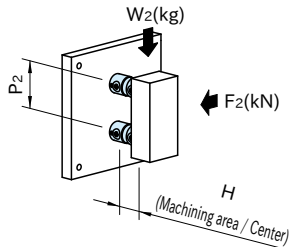
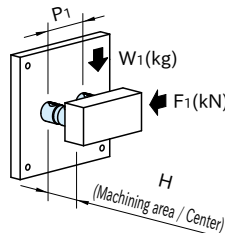
2 Modules

***) The use of Riser Screw is not recommended because allowable cutting force and allowable workpiece weight will be decreased.

Horizontal



Vertical

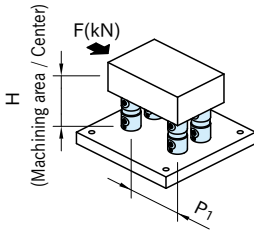


Part Number	Allowable Cutting Force			Allowable Workpiece Weight		
	F ₁ (kN)	F ₂ (kN)	Max(kN)	W ₁ (kg)	W ₂ (kg)	Max(kg)
CP150-06025	(0.10P ₁ + 180)/H	100/H	1.8	100×100/H	(0.10P ₂ + 180) ×100/H	180
CP151-06050	(0.05P ₁ + 90)/H	50/H		50×100/H	(0.05P ₂ + 90) ×100/H	
CP152-06032	(0.05P ₁ + 90)/H	50/H		50×100/H	(0.05P ₂ + 90) ×100/H	
CP150-08040	(0.24P ₁ + 432)/H	240/H	3.2	240×100/H	(0.24P ₂ + 432) ×100/H	320
CP151-08080	(0.14P ₁ + 252)/H	140/H		140×100/H	(0.14P ₂ + 252) ×100/H	
CP152-08050	(0.14P ₁ + 252)/H	140/H		140×100/H	(0.14P ₂ + 252) ×100/H	
CP150-12063	(0.50P ₁ + 900)/H	500/H	6	500×100/H	(0.50P ₂ + 900) ×100/H	600
CP151-12125	(0.30P ₁ + 540)/H	300/H		300×100/H	(0.30P ₂ + 540) ×100/H	
CP152-12080	(0.30P ₁ + 540)/H	300/H		300×100/H	(0.30P ₂ + 540) ×100/H	
CP150-16080	(1.00P ₁ +1800)/H	1000/H	10	1000×100/H	(1.00P ₂ +1800) ×100/H	1000
CP151-16160	(0.60P ₁ +1080)/H	600/H		600×100/H	(0.60P ₂ +1080) ×100/H	
CP152-16100	(0.60P ₁ +1080)/H	600/H		600×100/H	(0.60P ₂ +1080) ×100/H	
CP150-20100	(2.00P ₁ +3600)/H	2000/H	20	2000×100/H	(2.00P ₂ +3600) ×100/H	2000

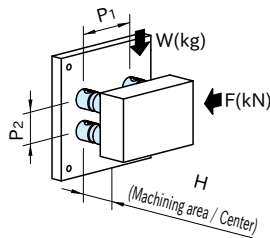
4 Modules

****) Allowable cutting force and allowable workpiece weight are significantly decreased when using Riser Screws. Please see the table below as a guide.

■ Horizontal

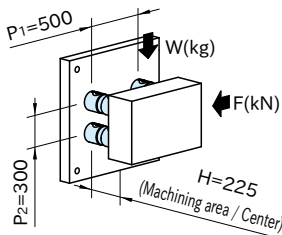


■ Vertical



Part Number	Allowable Cutting Force		Allowable Workpiece Weight		When using Riser Screws ****)
	F(kN)	Max(kN)	W(kg)	Max(kg)	
CP150-06025	$2 \times (0.10P_1 + 180) / H$	3.6	$2 \times (0.10P_2 + 180) \times 100 / H$	360	—
CP151-06050	$2 \times (0.05P_1 + 90) / H$		$2 \times (0.05P_2 + 90) \times 100 / H$		
CP152-06032	$2 \times (0.05P_1 + 90) / H$		$2 \times (0.05P_2 + 90) \times 100 / H$		
CP150-08040	$2 \times (0.24P_1 + 432) / H$	6.4	$2 \times (0.24P_2 + 432) \times 100 / H$	640	Allowable Cutting Force
CP151-08080	$2 \times (0.14P_1 + 252) / H$		$2 \times (0.14P_2 + 252) \times 100 / H$		
CP152-08050	$2 \times (0.14P_1 + 252) / H$		$2 \times (0.14P_2 + 252) \times 100 / H$		
CP150-12063	$2 \times (0.50P_1 + 900) / H$	12	$2 \times (0.50P_2 + 900) \times 100 / H$	1200	Allowable Workpiece Weight
CP151-12125	$2 \times (0.30P_1 + 540) / H$		$2 \times (0.30P_2 + 540) \times 100 / H$		
CP152-12080	$2 \times (0.30P_1 + 540) / H$		$2 \times (0.30P_2 + 540) \times 100 / H$		
CP150-16080	$2 \times (1.00P_1 + 1800) / H$	20	$2 \times (1.00P_2 + 1800) \times 100 / H$	2000	X50%
CP151-16160	$2 \times (0.60P_1 + 1080) / H$		$2 \times (0.60P_2 + 1080) \times 100 / H$		
CP152-16100	$2 \times (0.60P_1 + 1080) / H$		$2 \times (0.60P_2 + 1080) \times 100 / H$		
CP150-20100	$2 \times (2.00P_1 + 3600) / H$	40	$2 \times (2.00P_2 + 3600) \times 100 / H$	4000	X60%
					X70%

Calculation Example



- Vertical mounting
- 4 pcs of CP151-12125 (height 125mm)
- Pitch:
P₁=500mm
P₂=300mm
- Workpiece center: H=225mm
- F direction cutting force: 3kN
- Workpiece weight: 375kg

Related Product

Hook type for horizontal machining center is available.

<Allowable Cutting Force F>

$$F = 2 \times (0.3 \times P_1 + 540) / H \\ = 2 \times (0.3 \times 500 + 540) / 225 \\ = 6.13 \text{ kN}$$

*) Cutting force 3kN is within allowable value (6.13kN).

<Allowable Workpiece Weight W>

$$W = 2 \times (0.3 \times P_2 + 540) \times 100 / H \\ = 2 \times (0.3 \times 300 + 540) \times 100 / 225 \\ = 560 \text{ kg}$$

*) Workpiece weight 375kg is within allowable value (560kg).