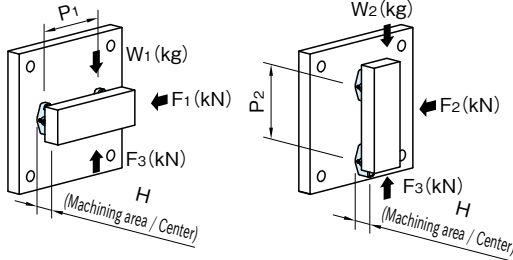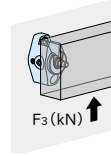# Allowable Cutting Force & Workpiece Weight of CLAMPING MODULES (Hook)

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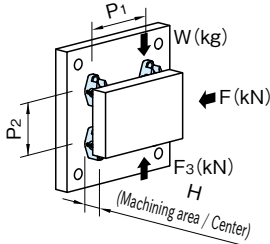Use the values as a guide for setting appropriate machining conditions.
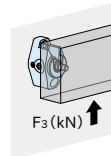
2 Modules

Note

Heavy cutting force in the open direction may cause workpiece move.

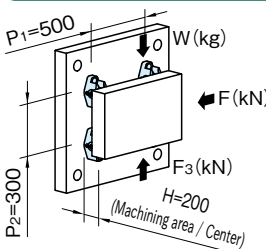| Size	Allowable Cutting Force				Allowable Workpiece Weight		
	F_1(kN)	F_2(kN)	F_3(kN)	Max (kN)	W_1(kg)	W_2(kg)	Max (kg)
CP160-08040	$(0.24P_1+432)/H$	$240/H$	$(0.9\times2)+(W_1 \text{ or } W_2\times0.01)$	3.2	$240\times100/H$	$(0.24P_2+432)\times100/H$	320
CP160-12063	$(0.50P_1+900)/H$	$500/H$	$(1.7\times2)+(W_1 \text{ or } W_2\times0.01)$	6	$500\times100/H$	$(0.50P_2+900)\times100/H$	600
CP160-16080	$(1.00P_1+1800)/H$	$1000/H$	$(3.6\times2)+(W_1 \text{ or } W_2\times0.01)$	10	$1000\times100/H$	$(1.00P_2+1800)\times100/H$	1000

4 Modules

Caution

Heavy cutting force in the open direction may cause workpiece move.

Size	Allowable Cutting Force			Allowable Workpiece Weight	
	F(kN)	F_3(kN)	Max (kN)	W(kg)	Max (kg)
CP160-08040	$2\times(0.24P_1+432)/H$	$(0.9\times4)+(W\times0.01)$	6.4	$2\times(0.24P_2+432)\times100/H$	640
CP160-12063	$2\times(0.50P_1+900)/H$	$(1.7\times4)+(W\times0.01)$	12	$2\times(0.50P_2+900)\times100/H$	1200
CP160-16080	$2\times(1.00P_1+1800)/H$	$(3.6\times4)+(W\times0.01)$	20	$2\times(1.00P_2+1800)\times100/H$	2000

Calculation Example

· 4 pcs of CP160-12063R/L
  (height 63mm)
· Pitch:
  P1=500mm
  P2=300mm
· Workpiece center: H=200mm
· F direction cutting force: 5kN
· F3 direction cutting force: 5kN
· Workpiece weight: 500kg

<Allowable Cutting Force F>
$F=2\times(0.5\times P_1+900)/H$
$=2\times(0.5\times500+900)/200$
$=11.5kN$
*) Cutting force 5kN is within allowable value (11.5kN).

<Allowable Cutting Force F3>
$F_3=(1.7\times4)+(W\times0.01)$
$=(1.7\times4)+(500\times0.01)$
$=11.8kN$
*) Cutting force 5kN is within allowable value(11.8kN).

<Allowable Workpiece Weight W>
$W=2\times(0.5\times P_2+900)\times100/H$
$=2\times(0.5\times300+900)\times100/200$
$=1050kg$
*) Workpiece weight 500kg is within allowable value (1050kg).