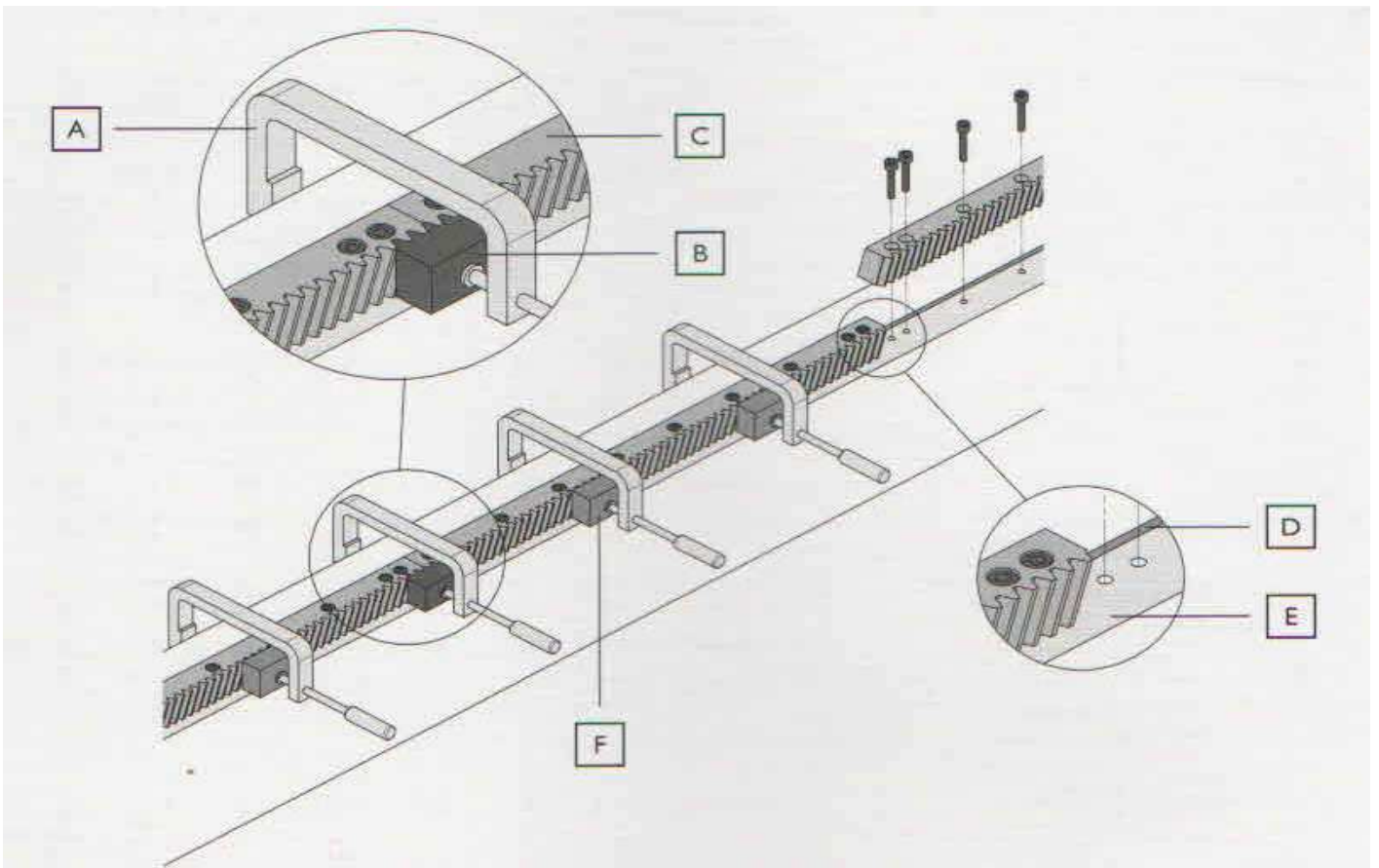


Rack Assembly Procedure



A : C Type Clamp (Spiral Clamp)

B : Opposite Teeth Gauge

C : Rack

D : Rack reference bottom surface

E : Rack reference side surface

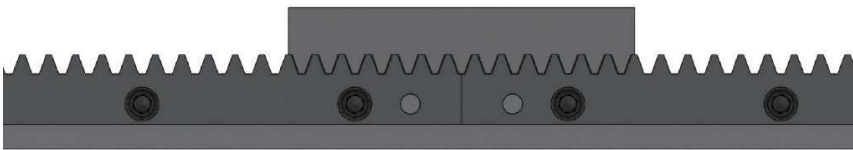
F : Soft pad



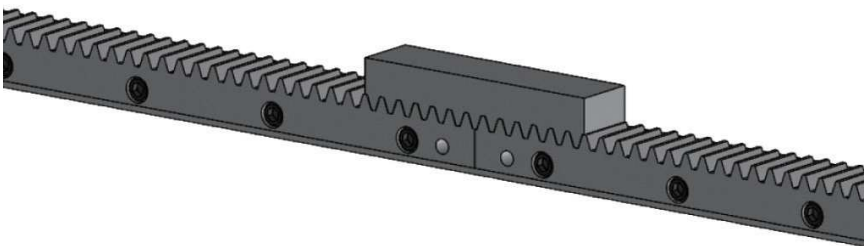
1. Please do check the reference surface of rack and installation base clean and complete to avoid any damage or chippings.
2. The rack is put on the base reference surface. Align the screw holes . Slightly tighten the screws to the contact surface.
3. Place the C-type clamp on the soft pad, then fix the two ends of the racks by the C-type clamp. Fix the middle of the rack averagely on the base to assure the whole rack is attached to the reference surface of the base completed.



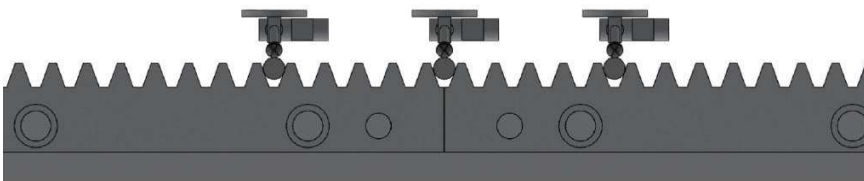
4. Tighten the screws (bolts) from the middle; then onward to the two ends of the racks.
5. Remove the C-type clamp and soft pads.
6. Use opposite teeth gauge to connect the next rack in order to avoid pitch error too large.



7. Slightly tighten screws and remove the opposite teeth gauge.

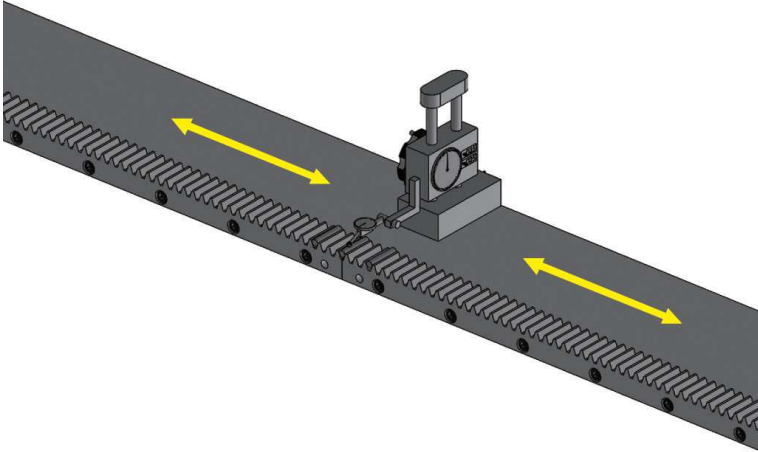


8. Place the inspection pins on A, B, C three points.

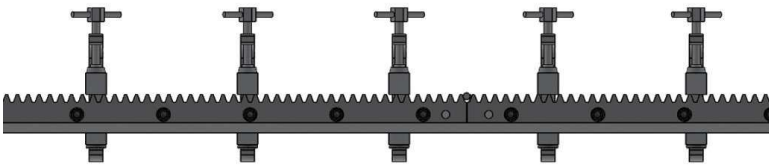




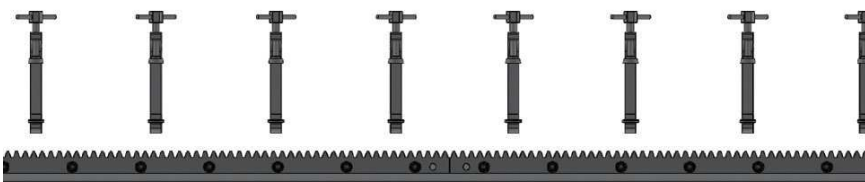
9. Measure the values of the 3 highest points of the inspection pins by height gauge to assure the 3 values are within 0.02mm . If difference is over , slightly adjust the distance of two jointed racks,



10. Once getting correct value of the highest inspection pin; use C-type clamp and place soft pads to fix the rack on the base. Then, use torque wrench in sequence to fix and tighten screws




11. Tighten screws and remove C-type clamp, soft pads. The assembly is completed. As Fig 13.

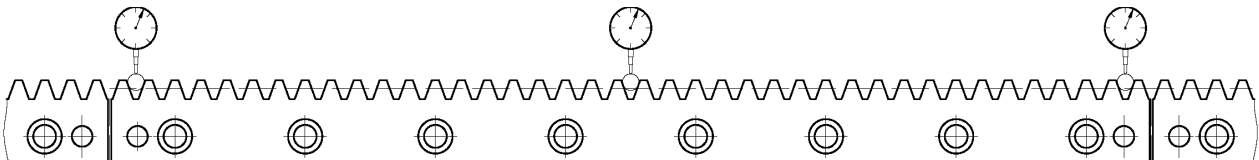


1. Rack & Pinion mounting tolerance

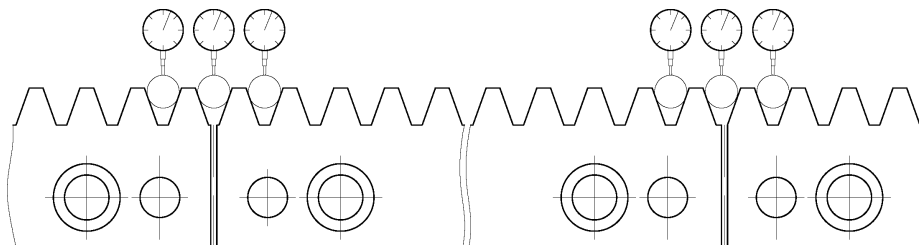
- *Parallelism between the rack reference surface and the linear guide within 0.05mm for complete axis length.*
- It requires that the rack has been installed on the machine following the rack manufacturer mounting procedure and respects the tolerances shown below:

	Module	Maximum parallelism errors between rack & linear guide		
		Pin diameter to use	For 1 rack section	For complete axis length
	M8 rack	13.5mm	0.04mm/m	0.08mm

We advice to measure the parallelism error values on 3 points for each segment of rack, as shown on the drawing below. **This rack topography will be used for proper tooth meshing validation.**

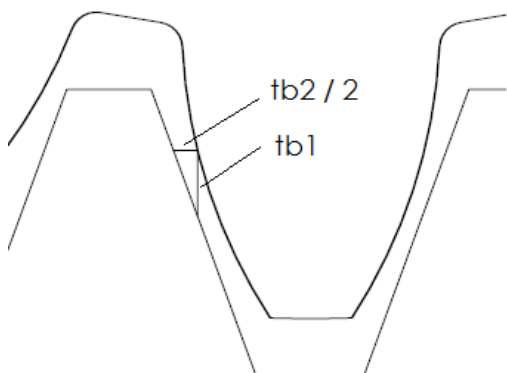
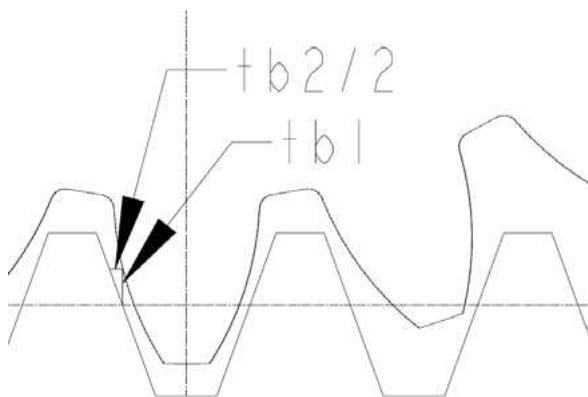


In order to control the pitch error, we also recommend doing 3 measurements at each connection of 2 rack segments, as shown on the sketch below.



The variation between the 3 comparators at each connection must not exceed 0.02mm(M8)

2. Pinion height setting



“ t_1 ” should be set in 0.05mm ~ 0.08mm (M8 recommend value)

NOTE:

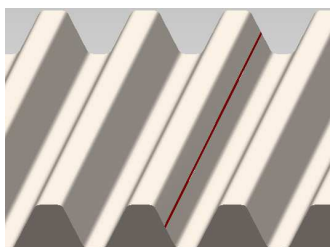
The machine frame supporting the unit must allow to adjust gearbox height.

3. Tooth contact pattern check

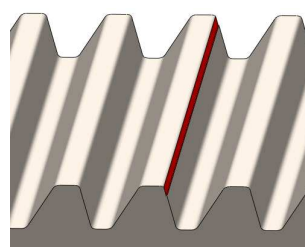
Checking the tooth contact pattern by bluing the pinion teeth.



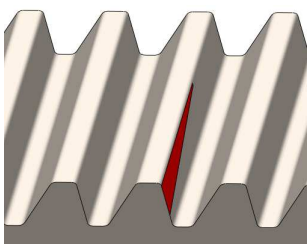
We strongly recommend doing this check. When the rack and the pinion are meshing correctly, the bluecolour covers 70 to 80% of the contact surface. The following pictures show the typical mesh errors.



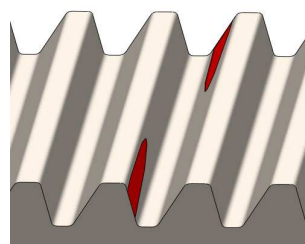
Correct



Wrong



Wrong



Wrong