

Appendix B: Tightening form for category I of the standardized flange joints, groups II and III - the heading should be completed by the administrator, while the content should be entered by the contractor

Tech. location	Pipe branch number / Position / Flange marking	DN	PN
Joint type	Flange/Flange	Flange / Valve	Flange / Plug
Rough lath			
Tongue / Groove			
Shoulder / Recess			
Metal ring - oval			
Metal ring - octagonal			
Other	Specify		
Joint inspection after disassembly	Satisfactory		Unsatisfactory
Condition of the sealing surfaces			
Joint material			
Geometry (alignment, planeness)			
Should any of the points be unsatisfactory, consult appropriate corrective measures with a maintenance technician and record this process in the "Note" field on this form			
Flange joint assembly			
Joint material	Kept		Replaced
Used thread lubricant			
Flange conductive connection type	Clamp*		
Tightening torque (Nm)			
Bolt prolongation (mm)			
Sealing type used for the assembly	SG - sandwich sealing (perforated sheet metal / lath mesh with a graphite foil)		SW - spiral sealing
			RTJ - metal ring - oval
			RTJ - metal ring - octagonal
	Other (specify)		
Notes			

* Due to the gradual transition to controlled tightening, the standard at UNI RPA is the use of clamps as a part of the given conductive connection

**Flange joint
implemented by:**

Name:

Date:

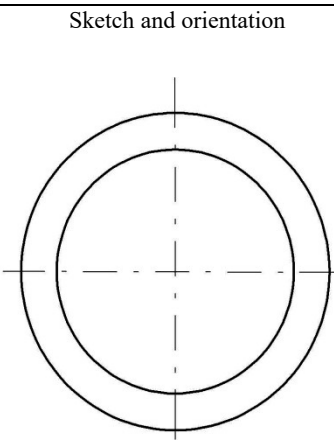
Signature:

Appendix C: Flange joint installation protocol for category I, group III, and category II of flange joints - the heading should be completed by the administrator, while the content should be entered by the contractor

1. Device

Operation	
Device marking	
Operation set	
Device name	
Flange joint name	
Flange marking	
Drawing number	
Installation date	

2. Sealing

Dimension			
Material			
Manufacturer			
Drawing number			
Storage time			
Sealing condition	Clean	YES	NO
	Dry	YES	NO
	Damaged	YES	NO
Defects, if any to be marked on the sketch	<p style="text-align: center;">Sketch and orientation</p> 		
Sealing fixation used		YES	NO
Glue type			
Foil for covering defects used		YES	NO

3. Flanges

Sealing surface type			
Condition of the sealing surfaces for sealing	Flattened	YES	NO
	Damaged	YES	NO
Damage description			
Foil for covering defects used	YES	NO	
Degreased surface	YES	NO	
Condition of the contact surface for nuts or bolt heads	Flattened	YES	NO
	Damaged	YES	NO
Damage description			
Planeness inspection conducted	YES	NO	
Sealing surface roughness must comply with Ra = 3.2 to 25	YES	NO	

4. Bolts (pins)

Marking			
Material			
Number			
New	YES	NO	
Thread damages	YES	NO	
Cleaned threads	YES	NO	
Lubrication product used	YES	NO	
Lubrication product type			
Roughness on the bolt head must comply with Ra = max. 1.6	YES	NO	

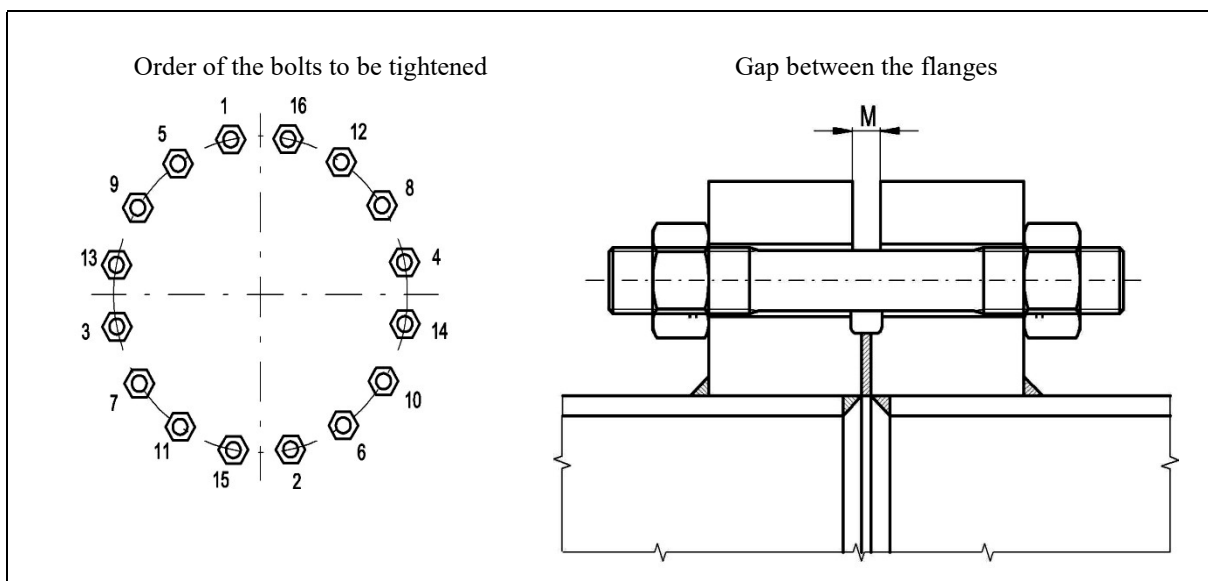
5. Nuts

Marking			
Material			
Number			
New	YES	NO	
Thread damages	YES	NO	
Cleaned threads	YES	NO	
Roughness of the contact surface must comply with Ra = max. 1.6	YES	NO	

6. Tightening

Tightening torque	YES	NO
Prescribed value		
Bolt prolongation	YES	NO
Prescribed value		
Torque wrench type for step 1	Scope	
	Accuracy	
	Wrench accuracy inspection protocol	
Torque wrench type for step 2	Scope	
	Accuracy	
	Wrench accuracy inspection protocol	
Torque wrench type for step 3	Scope	
	Accuracy	
	Wrench accuracy inspection protocol	

Tightening bolts	Main measurements	Auxiliary measurements of the gap between the flanges for bolt no.			
		Torque (Nm)	1 (mm)	2 (mm)	3 (mm)
Step 1 40%					
Step 2 70%					
Step 3 100%					
Step 4 after 30 minutes 100%					
Step 5 prior to the tightness test 100%					



**Flange joint
implemented by:**

Name:

Date:

**Signature:
e:**