

Smart Flange

Mechanical Connector



2025

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Smart Flange

Smart Flange is a mechanical end connector engineered for pipeline repair, rerouting, and abandonment applications. Utilizing robust collet grips, it provides a permanent, structural flanged termination by mechanically engaging the pipe. Dual-barrier seals ensure long-term integrity, supported by an integrated test port for annulus seal verification. The single-set design simultaneously actuates both grips and seals, enabling fast and reliable installation.

Smart Flange

- Pipeline Spool Piece
- Repairs
- Pipeline Reroutes
- Pipeline Abandonments
- Riser Repairs
- Structural Repairs



Smart Flange Specification

Project No.:

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Document No.

RAD-0028-R1

Revision

-

Date

June 4, 2025



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Items	Description
Service	Crude Oil/ Sweet Gas/ Sour Gas/ Condensate
Nominal pipe size (NPS)	4in to 56 in
Pipeline wall thickness	TBD
Pipe Ovality tolerance	2%
Design pressure rating	ASME/ANSI B16.5 class 600
RTJ size	ASME B16.20, OCTAGONAL TYPE
Engineering design	DNV RP F116-F113, DNV GL OS F101, ASME SEC VIII
EGA	TBD
Design Pressure	TBD
Design Temperature	TBD
Test Pressure and duration	As Per ITP
Test ports size	½ inch
Main Body Material	A105, A694, Eq.
Internal Part Material	AISI 4140 / Eq.
Inboard seal	Viton/ HNBR/ NBR
Protection sheet	SS 304L
Gripper design	Reversible collet
WN Flange Cir. bolts	TBD
Back Flange Cir.bolts	TBD
Coating	Marine Epoxy
Stud bolts and Nuts	A 193 B7M , A 194 (2HM) / Eq.
Required bolt tensioner	TBD
Packing	Wooden Pallet

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Inspection and Test Plan

Row	Inspection/test Item	Reference	inspection point				acceptance criteria.
			Freq.	RADCO	TPA	Company	
A	PIM	Contract		H	H	H	
B	DWG	GAD	-	H	R	H	
C	MATERIAL	MTC	Per heat	H	R	R	
D	MANUFACTURING 1. Machining	RADCO Procedure	-	H	NA	NA	
E	FAT 1. Hydrotest Execution 2. Hydrotest Report	RADCO Procedure	Per Batch	H	H	H	
F	Coating 3. Surface Preparation 4. Painting	RADCO Procedure	-	H	R	R	
G	Final Inspection 5. Dimensional Verification 6. Visual Checking 7. Name Plate Verification 8. Release Note	Related DWG	Per Batch	H	H	H	
	9. Final Book	EN10204 3.1		H	R	R	

H: Hold

R: Review

SW: Spot Witness

W: Witness

R/A: Review & Approval

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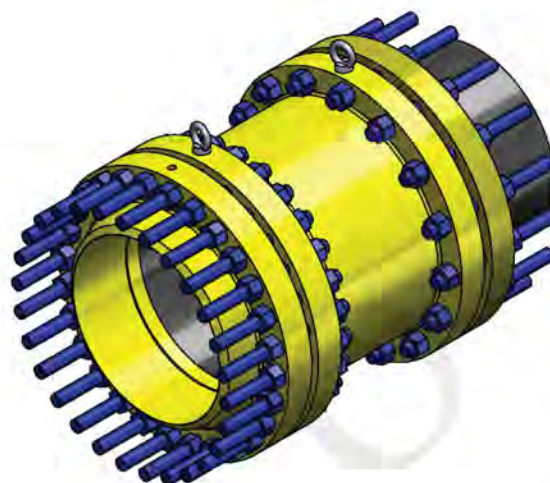
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RADCO - Application Sheet

Company Name :			Contact Phone :				
Contact Name :			Contact Email :				
Pipe Application Details			Boundary Conditions				
Pipe Nominal Size (OD)		inch	Installation Angle		Deg.		
		mm					
Pipe Class/Rating			Hydrotest Resultant Force		kN		
Pipe manufacturing (SML or UOE)			Hydrotest Resultant Moment		kN.m		
Pipe Material Grade			Operation Resultant Force		kN		
Line Media			Operation Resultant Moment		kN.m		
Pipe Year of Manufacture							
Pipe Sch./Wall Thickness							
Pipe Corrosion Allowance		mm					
Pipe Ovality		%	Bolt Tightening				
Max. Pipe OD*		mm	Stud Bolt Material	A193			
Pipe Operating Pressure		barg	Proposed Bolt Tensioner Type				
Pipe Design Pressure		barg	Bolt to Tensioning Ratio		%		
Pipe Incidental to Design pressure ratio			Max Bolt Stress to Bolt Yield		%		
Pipe hydrotest to Incidental pressure ratio			* Max. Pipe OD: This value will be used for circumferential gauge measurement before deployment of Smart Flange on Pipeline.				
HydroTest Pressure		barg					
Hydrostatic test duration		min					
Temperature Range (min/max)		° C					
		° C					
		m					
RADCO Product Type & Configuration							
Topside / Onshore	☐	Subsea - Diver Installed	☐	Subsea - Remote / ROV	☐	Quantity Required	
Pipe Clamp	☐	Flange Clamp	☐	Pressure Containing ONLY	☐	Pressure Containing and Structural	☐



Technical data

Design code	
ANSI Rating	
Temperature	
Media	

Material of construction

ITEM	Description	Material
1	Main Body	
2	Internal Parts	
3	Stud Bolts and Nuts	
4	Protection Sheet	
5	Coating	
6	Sealing	HNBR

ISO 2768-M Tolerances Table

Nominal Length (mm)	Tolerance ($\pm$ mm)
up to 6	0.1
>6 to 30	0.2
>30 to 120	0.3
>120 to 400	0.5
>400 to 1000	0.8
>1000 to 2000	1.2
>2000 to 4000	2

Notes

1. All edges are chamfered to 45 deg. for safe handling
2. All dimensionss are in mm , unless specified
3. Dimensions are subjected to change

Client:

Title: **Smart Flange** General Assembly Drawing



Drawn By: A.Ta	Dwg. No.: RAD-2025-D1-01	Rev. 1
Checked By: M.R		
Approved By: A.M		

ITEM	DESCRIPTION	DATA	ITEM	DESCRIPTION	DATA
1			4		
2			5		
3			6		
DIMENSION					
7			14		
8			15		
9			16		
10			17		
11			18		
12					
13			Num. of Bolts Front & Back Side		

This drawing is for general representation only; details such as the number of stud bolts and dimensions are indicative. Details will be provided upon order award.
RADCO could offer material or design equivalent with the datasheet or proven by engineering design calculation.

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