RADCO

شرکت دانش بنیان مه راد صنعت خلاق (رادکو)

Smart Flange

Mechanical Connector

www.radcofix.com

Radco@radcofix.com

+989127808909

2025

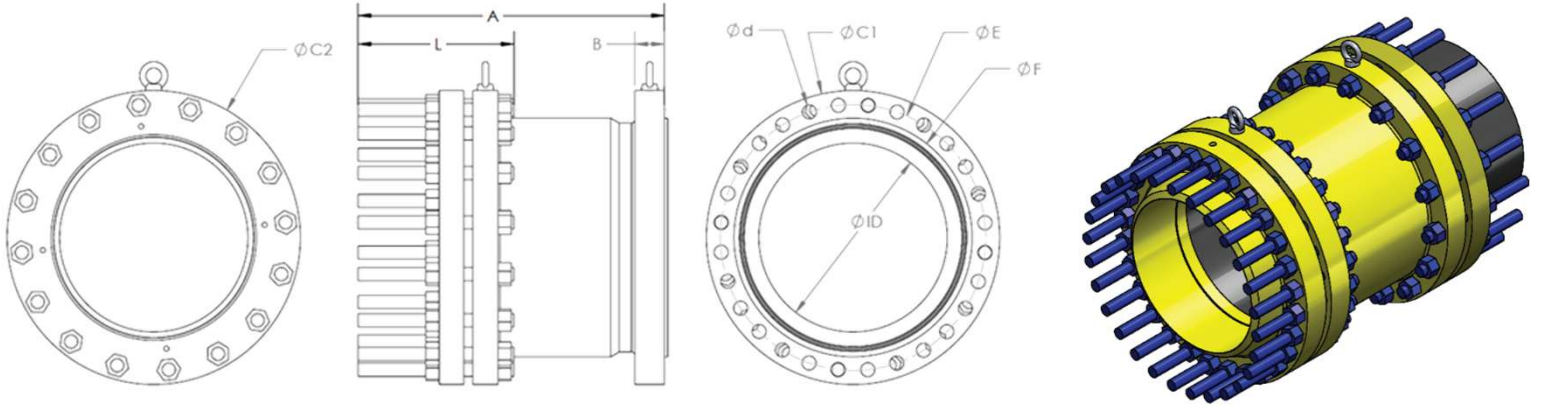
Smart Flange

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

Service	**Oil / Gas/ Condensate**
Design Code	DNV GL RP F113, DNV RP, DNV GL OS F101
Nominal pipe size (NPS)	4 inch~56 inch
RTJ size	ASME B16.20, Octagonal Type
ANSI Pressure Rating	ASME/ANSI B16.5 , 16.47 #150 ~#2500
Main Body Material	A694, A105, AISI 4140 or Eq. , NACE Compliance upon request
Inboard seal	Compatible wtih Fluid (HNBR, Viton, Buna N...)
Coating	Epoxy / Col Tar Epoxy/ Mastic Epoxy/ Marine Epoxy/ Glass Flake Epoxy

Smart Flange General Dimension



Pipeline Nominal Size (in)	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	48	56
ANSI Rating	150				300				600			900			1500				2500			

ITEM	DESCRIPTION	DATA		ITEM	DESCRIPTION	DATA
1	Nominal PIPE Size (NPS)	30 in		4	WN Flange Weight	395 kg
2	Design Pressure Rating	300		5	Smart Flange Gross Weight	1800 kg
3	RTJ Size	R95		6	Pipe OD	762 mm
DIMENSION						
7	A	1100 mm		14	ϕE	997 mm
8	B	90.5 mm		15	ϕd	47.5 mm
9	ϕC1	1090 mm		16	L	450 mm
10	ϕC2	1090 mm		17	ϕF	917 mm
11	ϕID	730 mm		18	Y	208 mm
12	E_F	12.7 mm				
13	EGA	350 mm		Num. of Bolts Front Side		28* 1 ¾ in

Table shows details for 30in smart flange # 300, indicative only. Data may change as client specification.
Product details for any sizes and ANSI ratings will be issued upon client request.

PRODUCT DETAIL

Brochure

MATERIAL SPECIFICATIONS:

ASTM A106, ASTM A516, ASTM A216

ASTM A105, ASTM A694 FORGING, AISI 4140

Elastomer Seals: HNBR, Viton or Buna-N

Studs & Nuts: ASTM A193 Gr. B7 , A194 Gr. 2HM heavy hex nuts

Coating: Epoxy / Col Tar Epoxy/ Mastic Epoxy/ Glass Flake Epoxy

DESIGN PARAMETERS:

Nominal Pipe Size (NPS): any API Specification 5L pipe and wall thickness

Service: Standard (i.e. crude oil, natural gas, hydrocarbons, water, chemical, etc.)

Design Pressure Rating: up to ANSI Class 2500

Hydrostatic Test Pressure : 1.2-1.5 times Design Pressure Rating

Design Life: 25 years

APPLICABLE DESIGN CODES & STANDARDS:

ASME Section VIII, Division 1 and 2

ASME B31.4 , ASME B31.8

ASME B18.2.1,

API SPEC 5L,

ASME PCC-2,

DNV-OS-F101, **DNVGL**-RP-F113,

API SPEC 6H,

NACE MR0175, ISO 15156.

CERTIFICATIONS:

IPICB Oil & Gas Type Approval Certificate

ISO 9001:2015– Accredited by BRSM Quality Management

Smart Flange Specification

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 SECVIII
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

RADCO - Application Sheet

Company Name :		Contact Phone :	
Contact Name :		Contact Email :	

Pipe Application Details

Pipe Nominal Size (OD)		inch
		mm
Pipe Class/Rating		
Pipe manufacturing (SML or UOE)		
Pipe Material Grade		
Line Media		
Pipe Year of Manufacture		
Pipe Sch./Wall Thickness		
Pipe Corrosion Allowance		mm
Pipe Ovality		%
Max. Pipe OD*		mm
Pipe Operating Pressure		barg
Pipe Design Pressure		barg
Pipe Incidental to Design pressure ratio		
Pipe hydrotest to Incidental pressure ratio		
HydroTest Pressure		barg
Hydrostatic test duration		min
Temperature Range (min/max)		° C
		° C
		m

Boundary Conditions

Installation Angle		Deg.
Hydrotest Resultant Force		kN
Hydrotest Resultant Moment		kN.m
Operation Resultant Force		kN
Operation Resultant Moment		kN.m

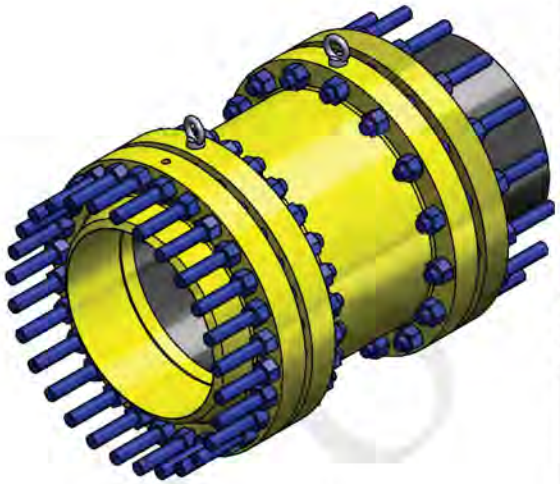
Bolt Tightening

Stud Bolt Material	A193	
Proposed Bolt Tensioner Type		
Bolt to Tensioning Ratio		%
Max Bolt Stress to Bolt Yield		%

*** Max. Pipe OD: This value will be used for circumferential gauge measurement before deployment of Smart Flange on Pipeline.**

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**	☐



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		

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 (± 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

RADCO

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

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.