



Total Solutions & Power







TSP was founded based on assembly and installation of marine diesel engine in 1994 and currently producing fuel pump, metal bearing, cylinder liner, piston crown which are the key parts of an engine.

The company has equipped casting and forging facilities for own supplying the entire parts and materials being produced by the company and we were able to succeed in acquiring competitive edge.

Also, providing various technical service and man power to worldwide engine builders and licensees ranging from components distribution, assembly and mounting and maintenance based on accumulated technologies and human resources.

**Since 2013 started as a company providing drill stem and drilling equipment with the initial product of Drill Collar to the Oil and Gas industry.**

TSP has been carrying forward a business to satisfy the customers of Oil & Gas industry with qualified products on the basis of the manufacturing equipment, precision machining technology, highly skilled work force and stable supply of high-quality material in the field of long lasted and advanced shipbuilding business.

The company has started the Drill Collar among drill stem in 2013 and on the way of producing Drill Collar and Heavy Weight Drill Pipe (HWDP). On top of that, TSP has also initiated its developing for Double Studded Adapter, Ram and Annular BOP of drill through equipment for the first time in Korea. The company will provide a various drill stem and drill through equipment for the onshore and offshore of world wide.

# INTRODUCTION



TSP has in-lined production facilities to manufacture major key drilling components for the Oil & Gas industry. TSP is licensed under API 7-1, API 16A and NS-1 and has a fully implemented API Q1 quality system.

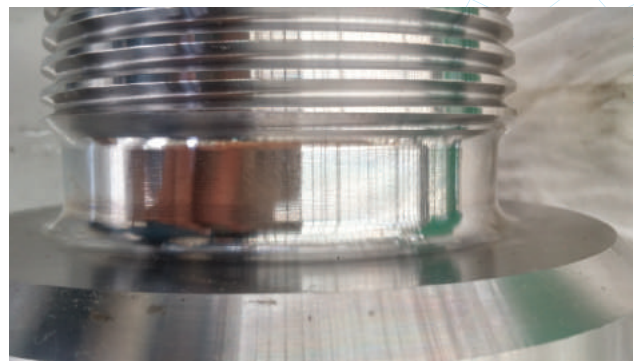
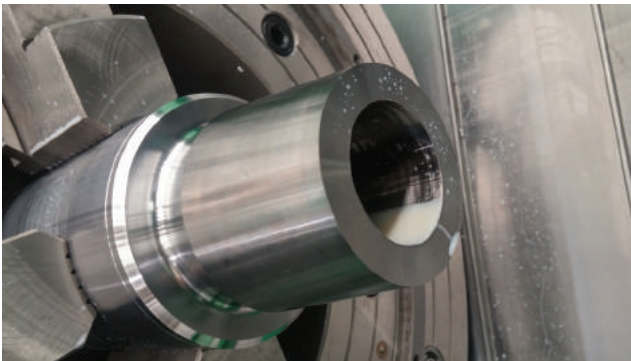
TSP offers special products and services, such as BOP and Drill Collars, manufactured according to your specifications and detailed plans. TSP uses the latest production machinery and maintains an ISO 9001 certified quality system.





## ADVANTAGES from TSP

- More than 20 years experienced precision machining technology
- Premium quality products with price competitiveness
- High quality standards with reflecting customer's requirements
- Ability to supply the drill stem package
- Quality assurance based on both of API and NS-1 certificates



# DRILL COLLARS

Drill Collar	Y.S		T.S		Elongation	Hardness	Charpy Impact Value
O.D Range	(Mpa)	(psi)	(Mpa)	(psi)	(%)	(HBW)	
(mm)	min.	min.	min.	min.	min.	min.	
79.4 through 174.6	758	110,000	965	140,000	13	285	40(54J)
177.8 through 279.4	689	100,000	931	135,000	13	285	40(54J)

Drill Collar Number and Connection Label	outside Diameter		Bore		Length	
	mm	in	mm	in	m	ft
NC 23-31	79.4	3 1/8	31.8	1 1/4	9.14	30
NC 26-35	88.9	3 1/2	38.1	1 1/2	9.14	30
NC 31-41	104.8	4 1/8	50.8	2	9.14 or 9.45	30 or 31
NC 35-47	120.6	4 3/4	50.8	2	9.14 or 9.45	30 or 31
NC 38-50	127	5	57.2	2 1/4	9.14 or 9.45	30 or 31
NC 44-60	152.4	6	57.2	2 1/4	9.14 or 9.45	30 or 31
NC 44-60	152.4	6	71.4	2 13/16	9.14 or 9.45	30 or 31
NC 44-62	158.8	6 1/4	57.2	2 1/4	9.14 or 9.45	30 or 31
NC 46-62	158.8	6 1/4	71.4	2 13/16	9.14 or 9.45	30 or 31
NC 46-65	165.1	6 1/2	57.2	2 1/4	9.14 or 9.45	30 or 31
NC 46-65	165.1	6 1/2	71.4	2 13/16	9.14 or 9.45	30 or 31
NC 46-67	171.4	6 3/4	57.2	2 1/4	9.14 or 9.45	30 or 31
NC 50-70	177.8	7	57.2	2 1/4	9.14 or 9.45	30 or 31
NC 50-70	177.8	7	71.4	2 13/16	9.14 or 9.45	30 or 31
NC 50-72	184.2	7 1/4	71.4	2 13/16	9.14 or 9.45	30 or 31
NC 56-77	196.8	7 3/4	71.4	2 13/16	9.14 or 9.45	30 or 31
NC 56-80	203.2	8	71.4	2 13/16	9.14 or 9.45	30 or 31
6 5/8 REG	209.6	8 1/4	71.4	2 13/16	9.14 or 9.45	30 or 31
NC 60-90	228.6	9	71.4	2 13/16	9.14 or 9.45	30 or 31
7 5/8 REG	241.3	9 1/2	76.2	3	9.14 or 9.45	30 or 31
NC 70-97	247.6	9 3/4	76.2	3	9.14 or 9.45	30 or 31
NC 70-100	254.0	10	76.2	3	9.14 or 9.45	30 or 31
8 5/8 REG	279.4	11	76.2	3	9.14 or 9.45	30 or 31



- Full range of Slick and Spiral Drill Collars
- AISI 4145H Mod.
- Enhanced fatigue resistance
- Prevention of galling
- Automated NDE(UT) verification

# NON-WELDED HWDP

Drill Collar	Y.S		T.S		Elongation	Hardness	Charpy Impact Value
O.D Range	(Mpa)	(psi)	(Mpa)	(psi)	(%)	(HBW)	
(mm)	min.	min.	min.	min.	min.	min.	
79.4 through 174.6	758	110,000	965	140,000	13	285	40(54J)
177.8 through 279.4	689	100,000	931	135,000	13	285	40(54J)

Nom. Size	Bore ID	Tool Joint OD	Connection	Elevator Upset Dia.	Center Upset Dia.
OD Inch(mm)	ID Inch(mm)	D Inch(mm)		Deu Inch(mm)	Dcu Inch(mm)
3 1/2 (88.9)	2 1/4 (57.2)	4 3/4 (120.7)	NC38	3 7/8 (98.4)	4 (101.6)
4 (101.6)	2 1/2 (63.5)	5 1/4 (133.4)	NC40	4 3/16 (106.4)	4 1/2 (114.3)
4 1/2 (114.3)	2 13/16 (71.4)	6 1/4 (158.8)	NC46	4 11/16 (119.1)	5 (127.0)
5 (127.0)	3 (76.2)	6 5/8 (168.3)	NC50	5 1/8 (130.2)	5 1/2 (139.7)
5 1/2 (139.7)	3 1/4 (82.6)	7 (177.8)	5 1/2 FH	5 11/16 (144.5)	6 (152.4)
6 5/8 (168.3)	5 (101.6)	8 (203.2)	6 5/8 FH	6 15/16 (173.2)	7 1/8 (181.0)



- Full range of HWDP based on non-welded type
- AISI 4145H Mod.
- Enhanced fatigue resistance
- Prevention of galling
- Automated NDE(UT) verification

# DOUBLE STUDDED ADAPTER

Material Designation	Y.S		T.S		Elongation	Hardness	Charpy Impact Value
	(Mpa)	(psi)	(Mpa)	(psi)	(%)	(HBW)	
	min.	min.	min.	min.	min.	min.	
45K	310	45,000	483	70,000	19	140	15(20J)
60K	414	60,000	586	85,000	18	174	15(20J)
75K	517	75,000	655	95,000	18	197	15(20J)

A Double Studded Adapter is a combination of flange (or adapters) of different sizes and pressure ratings.

TSP supplies Double Studded Adapters in various sizes and pressure ratings according to customer's specifications.

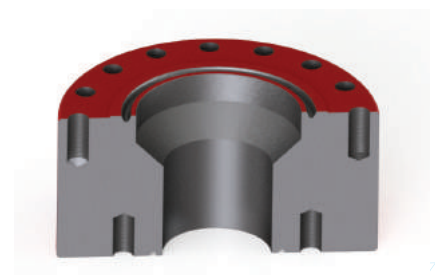
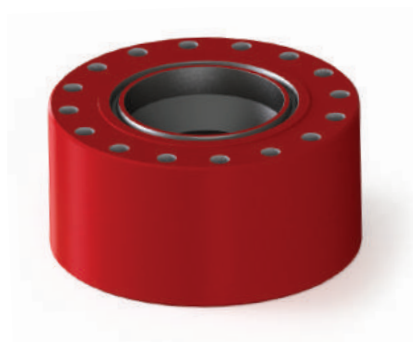
Nominal Size and Bore		Rated Working Pressure
Top Flange	Bottom Flange	
7 1/16"	2 1/16"	2,000 psi
9"	2 9/16"	3,000 psi
11"	3 1/8"	5,000 psi
13 5/8"	4 1/16"	10,000 psi
16 3/4"	5 1/8"	15,000 psi
18 3/4"	7 1/16"	20,000 psi
20 3/4"	9"	
21 1/4"	11"	
26 3/4"	13 5/8"	
30"	16 3/4"	
	21 1/4"	

## Double Studded Adapter range :

**Size** To customer's specifications pressure ratings (2,000 PSI to 15,000 PSI)

## Material of Construction

As specified by API 16A





# BLOWOUT PREVENTER

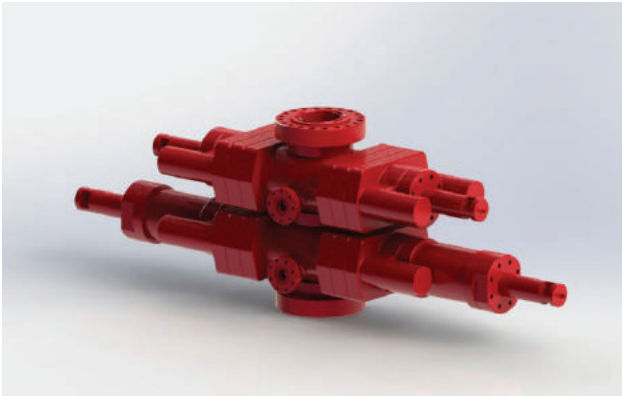


TSP supplies Annular and Ram type BOPs in various sizes and pressure ratings.

TSP BOPs can be used on land and at sea.

Ram Blocks can be changed with pipe in the hole.

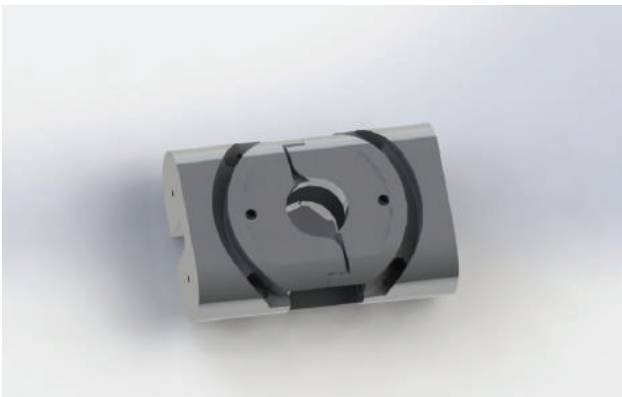
We manufacture BOPs in accordance with the latest edition of API 16A.



## Major Usages

BOP is designed for controlling the blowout during drilling. The single and double Ram BOPs are matched to the control system. They can be used individually or together with other BOPs.

They can also be used with Annular BOPs.





## API Certification

TSP products are manufactured in compliance with API standards 7-1 and 16A.



API 7-1



API 16A

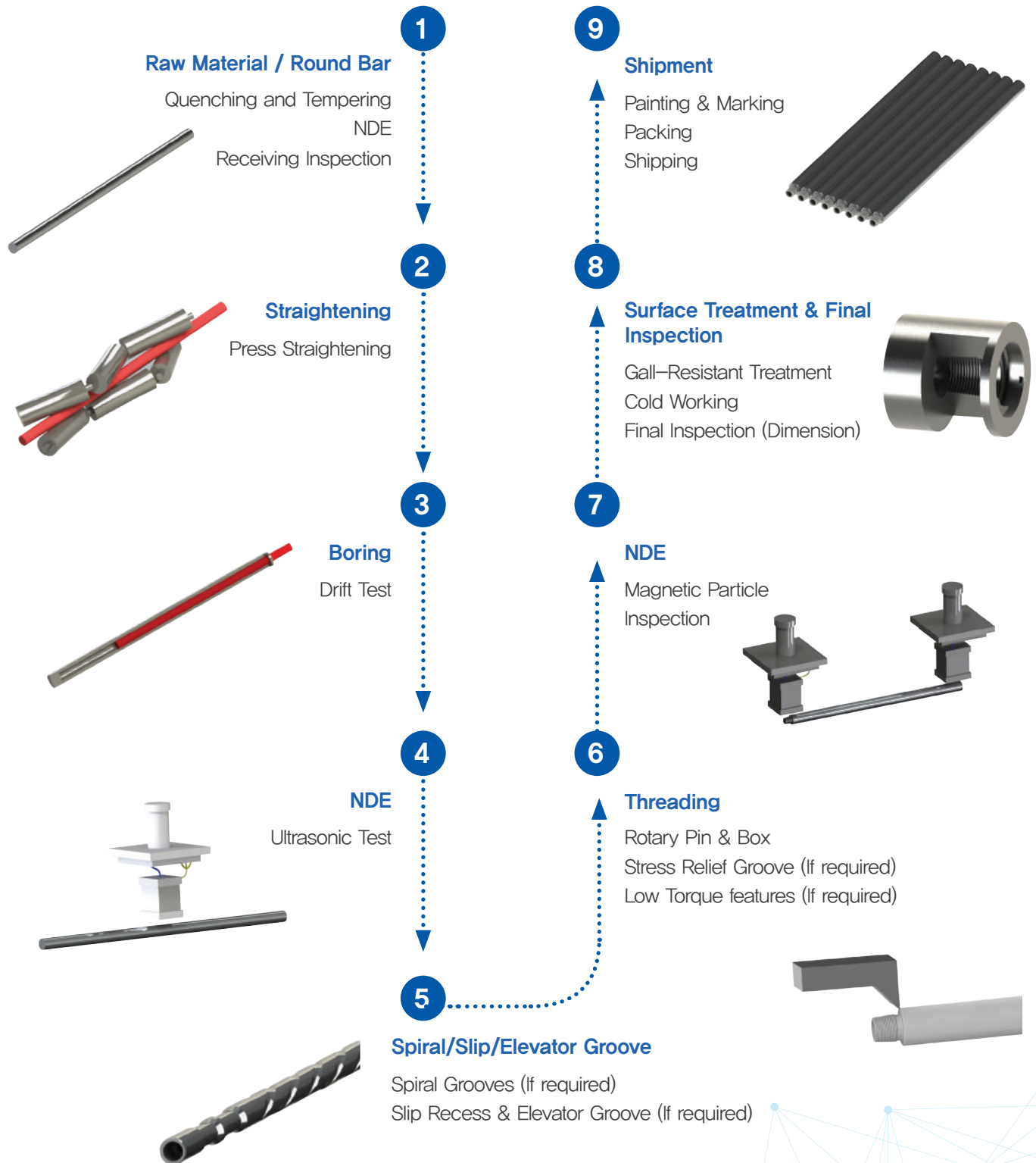
## NS Certification

In addition, TSP products can be supplied with the NS-1 specification



TSP facilities meet both API Q1 and ISO 9001 Quality Standards.

# PROCESS





# CONTACTS

## HEADQUARTER

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# ENQUIRY

## REQUEST FORM (DRILL COLLARS)

	Details	1	2	3	4	5
	Materials	<input type="checkbox"/> AISI 4145H	<input type="checkbox"/> AISI 4145H	<input type="checkbox"/> AISI 4145H	<input type="checkbox"/> AISI 4145H	<input type="checkbox"/> AISI 4145H
Dimension	Outside Diameter(In.)					
	Inside Diameter(In.)					
	Length(Ft.)					
External	Type	<input type="checkbox"/> Bored	<input type="checkbox"/> Bored	<input type="checkbox"/> Bored	<input type="checkbox"/> Bored	<input type="checkbox"/> Bored
		<input type="checkbox"/> Slick	<input type="checkbox"/> Slick	<input type="checkbox"/> Slick	<input type="checkbox"/> Slick	<input type="checkbox"/> Slick
		<input type="checkbox"/> Spiral	<input type="checkbox"/> Spiral	<input type="checkbox"/> Spiral	<input type="checkbox"/> Spiral	<input type="checkbox"/> Spiral
	Slip Recess					
	Elevator Groove					
Threads	Connection Type					
	Stress Relief Groove	<input type="checkbox"/> Pin <input type="checkbox"/> Box	<input type="checkbox"/> Pin <input type="checkbox"/> Box	<input type="checkbox"/> Pin <input type="checkbox"/> Box	<input type="checkbox"/> Pin <input type="checkbox"/> Box	<input type="checkbox"/> Pin <input type="checkbox"/> Box
	Boreback Box	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Cold Rolling	<input type="checkbox"/> Threads	<input type="checkbox"/> Threads	<input type="checkbox"/> Threads	<input type="checkbox"/> Threads	<input type="checkbox"/> Threads
		<input type="checkbox"/> Slip / Elevator	<input type="checkbox"/> Slip / Elevator	<input type="checkbox"/> Slip / Elevator	<input type="checkbox"/> Slip / Elevator	<input type="checkbox"/> Slip / Elevator
	Make And Break	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Protector Cap Type					
	Applicable Specification					
Remarks						





**Most Skillful Machining Technology**



**Fully Systemized and Well Organized In-Line  
Production Facilities**



**Cutting Edge with its Competitiveness  
in Delivery & Cost**





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