PT. ASTAJAYA NIRWIGHNATA

CEMENTING & CASING ACCESSORIES AND PRODUCTION EQUIPMENT
FOR OIL & GAS INDUSTRY

EDITION 2020

PT. ASTAJAYA NIRWIGHNATA

Factory
Jl. Raya Medan - Percut Sei Tuan (Jl. Irian Barat No. 30)
Sampali - Percut Sei Tuan, Medan 20371
North Sumatera - Indonesia
Phone No : +62 61 6630970 ; +62 61 6630994
+62 85347770059 ; +62 85347770019
Fax No : +62 61 6610257

Head Office
Komplek Duta Mas Blok C-2 No. 18
Jl. RS. Fatmawati No.39
Jakarta 12150 - Indonesia
Phone No : +62 21 7229494 (Hunting)
Fax No : +62 21 7229194

scan here to go to our website
www.astajaya.co.id

Representative & Marketing Office
Jl. Riau Ujung No. 47
Pekan Baru 28292
Riau - Indonesia
Phone No : +62 761 26166 (hunting)
Fax No : +62 761 29381

Representative & Warehouse
Komplek Pergudangan Bizhub 52 Blok A No. 17/18
Jl. Projakal KM 5.5 Kel. Graha Indah
Kariangau Balikpapan Utara
Balikpapan 76129
East Kalimantan - Indonesia
Phone No : +62 542 8530478

Representative & Warehouse
Jl. Raya Duri Dumai KM.7
Duri Riau
Riau - Indonesia
Phone No : +62 765 560155
Fax No : +62 765 560156

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Note :
Dimension, specification and parameters in this brochure are intended for reference purpose only. Astajaya reserves the right to modify it without prior notice.

Introduction

PT. Astajaya Nirwighnata (ASTA), established in 1988, is an Indonesian based company focusing in petroleum industry equipment manufacturing. Through wide range of product lines mainly in cementing accessories and float equipment, ASTA strive the challenge to become one of the most respected manufacturer in the region.

ASTA production site, located in Medan, North Sumatra, is a well-equipped manufacturing and testing facility, setup to produce wide-range of petroleum equipments with high production capacity level in order to meet market demand and needs.

As quality has always been our main concern being one of the key player in the industry, all major processes involved within our production lines are carried out in a world-wide standard granted by American Petroleum Institute (API), the Quality Management System of API Spec Q1 and ISO 9001:2015

Furthermore, our standardized and automated process frameworks, starting from product engineering design up to order delivery are carried out with computer assisted equipments and appropriate QA measurement and control procedures.

Experience, plus innovative spirit has driven us in keeping the pace and leading with new concepts and approaches to respond to the challenge and market requirement in delivering world class product and service.

" All Astajaya's personnel commit to maintain product quality to meet customer requirements and the applicable standards with minimum rejection level, on time delivery, competitive pricing, customer satisfaction is main priority and continually improve the effectiveness of the quality system ".

Customer Satisfaction Is Our Priority

Quality Management System

ASTA commitment to quality is demonstrated thru the implementation of Quality Management System and API product specification standard. ASTA is an American Petroleum Institute - API registered and accredited firm which comply with world-wide quality standard and specification.

In order to sustain such a high force, high variable and high pressure environment in cementing process, the needs for a wide range of high quality cementing accessories product has become undoubtedly certain. In line with our primary goal and commitment, ASTA offers various ranges of products which are designed to be able to support various needs, and are manufactured to meet the highest industry quality standard requirement. To extent our commitment to quality even further, ASTA provide option for our customer to take benefit of field assistance from our qualified engineer.

ASTA quality measurement and management starts from the very beginning of product design and material selection phase and concluded as a warranty to our customer. After gone thru the accurate design and precise material selection engineering process, our product will be manufactured using hi-precision equipment in a standardized process framework which includes numbers of quality control checkpoint. Once produced, the product will need to endure and pass series of test conducted in our computerized testing facility before being handled for on-time shipment and handover to our customer. Yet, quality does not stop just there. ASTA post-assistance scheme is available to provide extended support to ensure successful product implementation.

Engineering & Design

ASTA products are thoughtfully designed, thoroughly engineered and precisely manufactured with the intention of providing better product to the market. In ASTA, it has been in our sense that proper and precise design and engineering is the first, yet important step of overall product manufacturing process. Our engineering and design team involve in an end-to-end process frameworks with the responsibility of carrying out critical roles from selecting high quality material, designing product blueprint, planning design consistency and conducting product functional and strength tests, all in compliance to both API Specification and API Recommended Practice.

As part of the engineering and design team, ASTA has an established production development unit which designs the repeated manufacturing process in order to be able to control production capacity level as well as to keep consistent product specification and quality outcome.

Each of ASTA products has gone thru proper research and development process which examine the applicable new technology and conduct theoretical design with cross reference to adequate amount of field data such as temperature, hole-size, mud properties and back pressure which is essential to achieve all critical parameters required during product application in the field.

The objective of proper product engineering and design includes several technical benefits to the cementing job as follows:

- Additional supports for casing against collapsing, burst and tension forces.
- Formation isolation, which will prevent formation fluid from flowing up.
- Weak formation isolation which will prevent formation fluids from flowing into other formation up hole and fracturing the formation.
- Production formation isolation which provide isolation of hydrocarbon bearing formations from water bearing formations.

Cementing Accessories

ASTA cementing accessories includes range of products serve as primary cementing equipment, which has been carefully designed and manufactured, accommodating the most essential factors in well cementing process. Throughout many years of service in the oil industry, consistent learning and development strategy ensure the outcome of matured products that exceeds the API specification.

Designed to fit in various well conditions, range from shallow to deep ones, our product guarantees proper fitting and centering in each casing or borehole. In an extraordinary situation where critical well conditions emerge, our flexibility in service allow our team of expert to propose alternative casing design, re-engineered to overcome the situation.

Made to comply with the API Spec 10D specification, our cementing accessories products are oblige to pass series of test before being marked ready to market. Our computerized testing facility assures real-time high accuracy result in different types of test of starting, running and restoring forces versus stand-off specification from API Spec 10D requirement.

ASTA casing centralizer incorporates range of products comprise of Bow Spring Casing Centralizer, Positive Casing Centralizer and Solid Rigid Centralizer. In order to cater various condition and requirements, we produce variety of products characterized by installation method, model and type. Our casing centralizer includes Slip On and Latch On type of installation method, Spiral and Straight model and Welded and Non Welded product type.

In concordance to the implementation of management quality system of API Spec Q1 and ISO 9001 : 2015, the entire casing centralizer product line up are manufactured and managed with high quality assurance in regard to the API Spec 10D specification. Furthermore, our commitment to the market includes excellent delivery lead time policy made possible through a well-managed delivery process and appropriate stock level policy.

Welded Bow Spring Casing Centralizer

ASTA bow spring centralizer is designed with very low starting and running force while giving the substantial restoring force. Range from Slip On and Latch On installation model to Welded and Non Welded type with variation number of bow, this product is truly engineered to fit market needs.

Welded type casing centralizer is manufactured through appropriate welding procedure carried out by certified welder which refers to ASME sec. IX & AWS. While emphasize on 'easy to assembly' characteristic, the products are also available in diversified row heights to cater various casing or open hole configuration.

ASTA bow casing centralizer exhibits the following features:

- Bow springs are made from high quality spring steel, processed in one piece and form by sequential heat treatment resulted in a high strength and high flexibility bow. The bow springs are manufactured carefully to assure that the exact physical properties can be obtained for maximum durability and resilience, hence provide superior performance in all casing - hole size combinations.
- Latch-on bend are made from high strength steel plate and designed with rib cage to obtain enough rigidity. Precise hinge slots will ensure ease of assembling and installation of the interchangeable unit.
- Lock screws are designed to provide the flexibility of installation as well as to hold and fixed the centralizer at desired casing point.
- Hinge pins are made from high strength steel to assure secure bend interconnection.

Non Welded Bow Spring Casing Centralizer

ASTA offers a full line of patented, non-weld centralizers. The centralizers feature a unique interlocking adjournment between the end collar and bow spring, which makes for a strong singular unit. ASTA Non-Welded centralizers are designed to exceed the performance requirements of API Specification 10D for both starting and restoring forces.

Other design features of the Type Non-Welded centralizer include :

- Bow springs made of spring steel which has been heat treated and hardened tempered to ensure proper and consistent spring characteristics.
- End collar hinges are folded toward inside. This way will minimize the collar stretch that tends to occur when centralizers encounter tapers, commonly found in certain type of pipe connections.
- A reinforcing rib stamped into the end collar. This way will strengthen and preserve it's round configuration during transport
- Several different spring bow heights that are available to accommodate most of casing-to-hole configuration.
- Centralizers with built-in stop devices as well as those of uncommon sizes are available based on request.

Centralizer Product Specification:

Casing Size (in)	Hole Size (in)	Number of Bow	Band ID (in)	Average Bow OD (in)	Average Length (in)	Part No.	
						Welded	Non Welded
3-1/2	4-3/4 ~ 6	4	3-5/8	5-1/4 ~ 6-1/2	22	113560	173560
4	6 ~ 8-1/2	4	4-1/8	6-1/2 ~ 9	22	114060	174060
4-1/2	6 ~ 8-1/2	4	4-5/8	6-1/2 ~ 9	22	114560	174560
5	6-1/2 ~ 8-3/8	4	5-1/8	7 ~ 8-7/8	22	115061	175061
5-1/2	7-5/8 ~ 8-3/8	4	5-5/8	8-1/8 ~ 8-7/8	22	115578	175578
6-5/8	8-3/8 ~ 8-3/4	4 / 6	6-3/4	8-7/8 ~ 9-1/4	22	116683	176683
7	8-1/2 ~ 12-1/4	4 / 6	7-1/4	9 ~ 12-3/4	22	117085	177085
7-5/8	9-1/2 ~ 12-1/4	4 / 6	7-3/4	10 ~ 12-3/4	22	117695	177695
8-5/8	9-1/2 ~ 12-1/4	4 / 6	8-3/4	10 ~ 12-3/4	22	118695	178695
9-5/8	12-1/4 ~ 14-3/4	6 / 8	9-3/4	14 ~ 15-1/4	22	118695	178695
10-3/4	12-1/4 ~ 14-3/4	6 / 8	10-7/8	14 ~ 15-1/4	22	111013	171013
11-3/4	14-3/4 ~ 16	6 / 8	11-7/8	15-1/8 ~ 16-1/2	22	111113	171113
13-3/8	16 ~ 17-1/2	6 / 8	13-1/2	16-1/2 ~ 18	22	111317	171317
16	20 ~ 22	6 / 8 / 10	16-1/8	20-1/2 ~ 22-1/2	26	111620	171620
18-5/8	22 ~ 26	6 / 8 / 12	18-3/4	22-1/2 ~ 26-1/2	26	111822	171822
20	24 ~ 26	6 / 8 / 12	20-1/8	24-1/2 ~ 26-1/2	26	112024	172024

Notes :

*(*) Close tolerance-internal stop collar*

1. Where two bow spring sizes are indicated, the lower one should be used for smaller hole-sizes or with light weight casing and 2 centralizers per joint installations.
2. Type 12 and 16 bow springs are identical, 12 is for notched-in, 16 for lap-welded close tolerance centralizer.

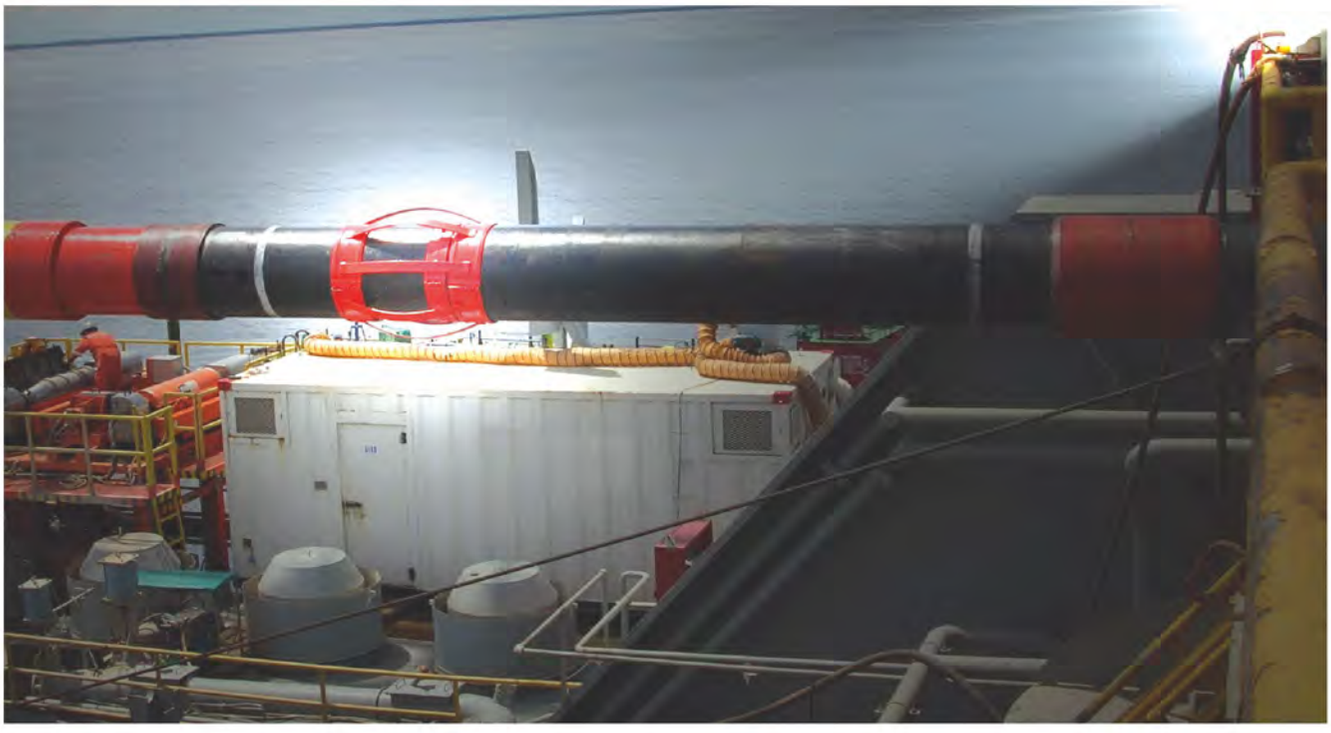
Ordering Suggestions

To assure the correct size and type of equipment is obtained, please specify:

1. Casing O.D on which the equipment will be used
2. Hole size or casing I.D in which the equipment will be placed
3. Any restriction through which the equipment will be run
4. If casing or tubing is externally " upset "

Centralizer Performance :

API Specification 10-D Requirement		
Casing Size (in)	Welded & Non Welded Centralizer	
	Max. Starting / Running Force (lbf)	Min. Restoring Force at 67% Stand off (lbf)
3-1/2	396	396
4	454	454
4-1/2	464	464
5	520	520
5-1/2	620	620
6-5/8	960	960
7	1040	1040
7-5/8	1056	1056
8-5/8	1440	1440
9-5/8	1600	1600
10-3/4	2040	1020
11-3/4	2160	1080
13-3/8	2440	1220
16	2600	1300
18-5/8	3500	1750
20	3760	1880



Special Clearance - HRS

High Restoring force for Horizontal Wells

This type of centralizer is specially designed for use in highly deviated and horizontal wells where zero starting & running force and a very high restoring force are required, Asta developed this type of centralizer to accommodate field required combined applications both close tolerance in space and high restoring force. Available as Slip On or Latch on Type in all sizes ranging from 3 1/2" to 13-3/8" for any hole size combination.

Product features include:

- ✓ Designed to far exceed API Specification 10D for high restoring force.
- ✓ Be used in highly deviated and horizontal well where low running force and very high centering force are required.

Specification :

Casing Size (in)	Hole Size (in)	Number of Bow	Band ID (in)	Average Bow OD (in)	Max. Starting/ Running Force (lbf)		Min. Restoring Force at 67% Stand off (lbf)	
					API	Asta	API	Asta
3-1/2	6	4	3.700	5.950	396	0	396	2800
4	6	4	4.200	5.950	454	0	454	2000
4-1/2	6	4	4.700	5.950	464	0	464	2300
4-1/2	8-1/2	4	4.700	8.450	464	0	464	2000
7	8-1/2	6	7.200	8.450	1040	0	1040	2700
7	9/1/2	6	7.200	9.450	1040	0	1040	2500
9-5/8	12-1/4	6	9.840	12.200	1600	0	1600	3000
13-3/8	17-1/2	8	13.600	17.400	2440	0	1220	2600

Note : Other size & requirement are available based on request

Ordering Suggestions

To assure the correct size and type of equipment is obtained, please specify:

- Casing O.D on which the centralizer will be installed
- Hole size or casing I.D in which the equipment will be run in
- Any restriction through which the equipment will run through

Semi Rigid - DB

Asta Semi Rigid Centralizers – Double Bows: features uniquely profiled bows that simultaneously provide the operator with those features found desirable in both spring bow and rigid centralizers.
The design of the semi positive or semi rigid centralizer allows complete centering in under and slightly over gauge holes while providing the same centering force that can be produced with positive or rigid centralizer. The double bows (tandem) profile of the semi-positive or semi-rigid bow provides restoring forces that far exceed the standards set forth in API Specification 10D which normally associated with bow centralizers. Available in Slip On and Latch on Type, and available in all sizes ranging from 3 1/2" to 13 3/8" for any hole combination.

Semi Rigid - SB

Asta Semi Rigid (single bow) is almost similar with Semi Rigid (double bow), designed for well where differential sticking may occur and low starting & running force are desirable to easily run the casing without losing the high centering force which is required for proper casing stand-off. This centralizer is designed for small-clearance casing-to-hole size application. The centralizer will perform as a standard bow centralizer in holes up to 1/2" smaller than the centralizer's nominal OD. When run in holes less than 1/2" smaller than the OD, the center of the centralizer will contact the casing OD, performing as a rigid centralizer. With high restoring force on less spring deflection, this centralizer is excellent for deviated and horizontal wellbores. Available in Slip On and Latch on Type for all sizes ranging from 3 1/2" to 13 3/8" for any hole combination.

Specification :

Casing Size (in)	Hole Size (in)	Number of Bow	Band ID (in)	Average Bow OD (in)	Max. Starting/ Running Force (lbf)		Min. Restoring Force at 67% Stand off (lbf)	
					API	Asta	API	Asta
3-1/2	6	4	3.700	6.000	396	<150	396	3100
4	6	4	4.200	6.000	454	<150	454	3200
4-1/2	6	4	4.700	6.000	464	<150	464	3100
4-1/2	8-1/2	4	4.700	8.500	464	<150	464	2800
7	8-1/2	6	7.200	8.500	1040	<150	1040	3000
7	9/1/2	6	7.200	9.500	1040	<150	1040	2800
9-5/8	12-1/4	6	9.840	12.250	1600	<150	1600	2800
13-3/8	17-1/2	8	13.600	17.500	2440	<150	1220	3300

Note : Other size & requirement are available based on request

Ordering Suggestions
To assure the correct size and type of equipment is obtained, please specify:
- Casing O.D on which the equipment will be used
- Hole size or casing I.D in which the equipment will be placed
- Any restriction through which the equipment will be run

Metal Petal (Cement Basket)

Metal Petal (Cement Basket) Bow Spring Casing Centralizer, Slip On Welded Type. Manufactured through appropriate welding procedure carried out by certified welder. Meet or exceed the requirement of API Spec 10 D (Starting Force, Running Force & Restoring Force). Easy to installed.

Metal Petal (cementing Basket) is designed to assist in supporting an upper cement column at the time of cementing operations and can be normally installed between slip-on type stop collars or stop collar or hinged camp over the casing to hold it in a place.

Available in all sizes ranging from 3-1/2" to 18-5/8" for any holes combination, specific require-ment are available based on request.

Flex Band Bow Casing Centralizer

ASTA's Flex Band Bow Casing Centralizer is a further developed bow spring casing centralizer introducing the flexible bands/end collars. This feature enables the casing centralizer to be dismantled and stored in flat mode, allowing cost saving in the sense of minimum storage space requirement, smaller packaging dimension and ease of transportation handling. The centralizer constitutes a unique interlocking braid between the end collar and bow spring, designed to achieve a strong singular unit. ASTA Flex Band Bow Casing Centralizer is fully compliant with API Specification 10D for both starting & running force and well exceeding the requirements of API Specification 10D for restoring forces.

Overall design features of the Flex Band Bow Casing Centralizer include the following :

- ✓ Spring steel bows with rounded edge profile designed for safety reason and to minimize damage on casing wall or other equipment which traversed by the centralizer. The bows are heat treated and harden-tempered to achieve appropriate strength and consistent spring characteristics.
- ✓ Band/End collar hinges are folded toward inside. This design feature is carefully engineered to minimize the collar stretch which tends to occur when centralizers encounter tapers, commonly found in certain type of pipe connections.
- ✓ Flat dismantled mode allows more than 50% saving of storage space & cost of transportation while increasing shipping quantity by three fold.
- ✓ Ease of use allows faster installation time and convenient assembly and installation in limited space.
- ✓ Starting & Running Force meets the requirements of API Spec 10D the latest edition.
- ✓ Restoring Force exceeds the requirements of API Spec 10D the latest edition.
- ✓ Various spring bow heights are made available to accommodate the required casing-to-hole configuration.
- ✓ Available in Welded and Non Welded Latch on Type for any size and holes combination.

Turbolizer Bow Spring Casing Centralizer

Turbolizer Bow Spring Casing Centralizer, Latch on Welded Type c/w Hinge Pins. manufactured through appropriate welding procedure carried out by certified welder. Meet or exceed the requirement of API Spec 10 D (Starting Force, Running Force & Restoring Force). Interchangeable and easy to installed.

BowTurbolizer Centralizer is based upon the Centralizer with Turbolating Fins added to the bow springs. The Fins direction of BowTurbolizer Centralizer may be ordered in both right and left hand versions to assist in the uniform displacement of the cement. The BowTurbolizer Centralizer are supplied with integral set screws located in the lower collar or band to secure the BowTurbolizer Centralizer on the casing. Meet API Specification 10-D requirements for Starting, Running and Restoring Force in most casing and hole combinations.

- Bow springs are made from high quality spring steel, processed in one piece and form by sequential heat treatment resulted in a high strength and high flexibility bow. The bow springs are manufactured carefully to assure that the exact physical properties can be obtained for maximum durability and resilience, hence provide superior performance in all casing-hole size combinations. With special rounded bow profile designed for safety reasons and to minimize damage to the casing wall or other equipment traversed by the casing centralizer.
- Latch-on bend are made from high strength steel plate and designed with rib cage to obtain enough rigidity. Precise hinge slots will ensure ease of assembling and installation of the interchangeable unit.
- Turbolating Fins are made from high strength steel plate and designed to assist in the uniform displacement of the cement.
- Hinge pins are made from high strength steel to assure secure bend interconnection.

Available in all sizes ranging from 3-1/2" to 18-5/8" for any holes combination, specific requirement are available based on request.

Dual String Bow Spring Centralizer

Dual String Bow Spring (Tubing) Centralizer Latch On Welded Type, manufactured through appropriate welding procedure carried out by certified welder. Exceed the requirement of API Spec 10 D (Starting Force, Running Force & Restoring Force). Interchangeable and easy to installed. Dual String Bow Spring (Tubing) Centralizer Latch On Welded Type is designed to accommodate two string/tubing pipe to be incorporated simultaneously into the wellbore.

- Bow springs are made from high quality spring steel, processed in one piece and form by sequential heat treatment resulted in a high strength and high flexibility bow. The bow springs are manufactured carefully to assure that the exact physical properties can be obtained for maximum durability and resilience, hence provide superior performance in all casing-hole size combinations. With special rounded bow profile designed for safety reasons and to minimize damage to the casing wall or other equipment traversed by the casing centralizer.
- Latch-on bend are made from high strength steel plate and designed to accommodate dual string/tubing. Precise hinge slots will ensure ease of assembling and installation of the interchangeable unit
- Hinge pins are made from high strength steel to assure secure bend interconnection.

Positive Bar

Asta Positive Bar centralizers are designed to provide positive stand-doff and centering. This product can be used in casing or open-hole applications. In cased-hole situations, this product can be installed below casing hanging equipment and under liner hangers to facilitate proper setting.
Encompasses special size steels bars welded to the End Collar, which assured ultimate strength and uniformity in every weld. Steel construction provides superior toughness over other materials. Available in all sizes ranging from 3-1/2" to 13 3/8" for any holes combination. This type of centralizers significantly reduces frictional drag while being used in deviated holes. Provide almost 100% stand off when run inside a cased hole. The design eliminates weak (brittle) spots passage. This product may be shipped in half assembled condition for lower shipping and storage costs.

Specification :

Casing Size (in)	Hole Size (in)	Number of Bow	Band ID (in)	Average Bow OD (in)	Starting / Running Force (lbf)	Min. Stand Off for Medium Casing Weight (%)	
						API	Asta
3-1/2	6	4	3.700	5.750	0	67	90.00
4-1/2	6	4	4.700	5.750	0	67	83.33
4-1/2	8-1/2	4	4.700	8.125	0	67	90.63
7	8-1/2	6	7.200	8.1250	0	67	75.00
9-5/8	12-1/4	6	9.840	12.000	0	67	90.48
13-3/8	17-1/2	8	13.600	17.000	0	67	87.88
13-3/8	24	8	13.600	22.000	0	67	81.18

Ordering Suggestions
To assure the correct size and type of equipment is obtained, please specify:
- Casing O.D on which the equipment will be used
- Hole size or casing I.D in which the equipment will be placed
- Any restriction through which the equipment will be run

Note : Other size & requirement are available based on request

Positive / Rigid Spiral Fins

Asta Positive / Rigid Spiral Fins centralizer is specially designed for highly deviated or horizontal wells. This product is ideal for use with Liner Hangers. The steel construction ensures extra strength and superior toughness. The "boat" shaped Spiral fins minimize Drag Force while running pipe. The fins glide smoothly in the low side of horizontal bore holes.

Wide symmetrical fins are smoothly beveled on the both ends to have lower coefficient of friction and to ease casing movement in either direction. Fins designs also resist high side load. Spirally oriented Fins welded to the one piece rolled formed End Collar, which assured ultimate strength and uniformity in every weld. Steel construction provides superior toughness over other materials. Vanes can be selected to meet any hole-diameter from a choice of seven boat profile depths. Slip-On Spiral Rigid are provided for direct installation on the pipe by slipping on and can be provided with compatible Stop Collars beveled from one side positioned by set screw. Shipped in assembled condition only, available in all sizes ranging from 3 1/2 to 13 3/8" for any hole combination.

Positive / Rigid Straight Fins

Asta Positive / Rigid Straight Rigid Centralizers are designed for highly deviated horizontal well where casing centralization is a main consideration. The Straight Fins Centralizer is made in various lengths to satisfy various needs. Encompasses special size rolled Alloy Steel bars, welded to the one piece rolled formed End Collar, which assures ultimate strength and uniformity in every weld. Steel construction provides superior toughness over other materials. This product assures positive standoff, maximum flow; maximum well bore stabilization, maximum holding strength and minimum drag. Centralizers are provided for direct installation on pipe by slipping on, with or without set screw for elimination of Stop Collar. This product is shipped in assembled condition only. Available in all sizes ranging from 3 1/2" to 13 3/8" for any hole combination.

Specification :

Casing Size (in)	Hole Size (in)	Number of Bow	Band ID (in)	Average Bow OD (in)	Starting / Running Force (lbf)	Min. Restoring Force at 67% Stand off (lbf)	
						API	Asta
3-1/2	6	4	3.700	5.750	0	67	90.00
4-1/2	6	4	4.700	5.750	0	67	83.33
4-1/2	8-1/2	4	4.700	8.125	0	67	90.63
7	8-1/2	6	7.200	8.125	0	67	75.00
7	9-1/2	6	7.200	9.125	0	67	85.00
9-5/8	12-1/4	6	9.840	11.875	0	67	85.71
13-3/8	17-1/2	8t	13.600	17.000	0	67	87.88

Note : Other size & requirement are available based on request

Ordering Suggestions

To assure the correct size and type of equipment is obtained, please specify:

- Casing O.D on which the equipment will be used
- Hole size or casing I.D in which the equipment will be placed
- Any restriction through which the equipment will be run

Solid Body Spiral Blades

Asta Solid Body Centralizers are designed to meet the needs for better cementing in high deviated and horizontal well. This product is manufactured to provide optimum flow with blades overlap the entire 360-degree open-hole circumference. Provide reduced flow area between the spirals and create vortex motion to increase fluid velocity with direction.
Extra length of blades gives maximum centralization, high standoff and increase annular turbulence. Even without rotation, the relived angle blades induce turbulent flow for improved cutting and filter cake removal.

Asta Solid Body Centralizer provide more effective Stand Off and Fluid swirl. The angle of the uniquely designed spiral blades produced maximum fluid swirl, thus allow maximum removal of debris from around the casing in any type of hole. This product withstands high well bore temperature while providing maximum horizontal stand off. Well head friendly and have high impact with shock resistance, along with optimum tensile and yield strength. Available in all sizes ranging from 3-1/2" to 13 3/8" for any holes combination.

One Single Band Centralizer

As well as Solid Body Centralizer, Astajaya also develops almost similar products, i.e. One Single Band Centralizers that designed to resist high side loads while giving maximum stand-off. The spiral or straight blades create optimize mud flow displacement. The One Single Band Centralizer is designed for highly deviated or horizontal wells. The Spiral or Straight blades are welded on the band to ensure extra strength and superior toughness. This One Single Band Centralizer system can be used with either one or two Slip On beveled end type Stop Collar with set screw locking type for Vertical, inclined, and horizontal wells with maximum stability.

Available in all sizes ranging from 3-1/2" to 18-5/8" for any holes combination, specific requirement are available based on request.

Stop Collars

ASTA stop collars are designed to be installed at both lead and tail of the centralizer bends to hold out its body. Our product line includes Bolt and Screw Latch-On type and Slip-On and Beveled Slip-On Type. ASTA stop collar features quick and easy installation and guarantees maximum holding force with minimum indentation on the casing.

Latch on Bolt Type

Designed with single bolt with hinge locking mechanism to tighten the stop collar to the casing, ASTA Latch-On Bolt type Stop Collar allows simple installation yet guarantees maximum holding force. The holding force obtain from proper installation is higher than the allowable starting force of centralizer as specified in the API Specification 10D. This type is not recommended for installation in close tolerance where clearance of hole-size and casing is less than 1-1/2.

Latch on Screw Type

ASTA Latch On Screw type Stop Collar is designed with spiral hinge pins driven between the stop collar and the casing thus effectively lock the stop collar to the casing. Recommended for low circular clearance condition.

Slip - On Type

ASTA Slip-On Type stop collar is designed as a solid band collar without hinges for slide over casing installation. Locking mechanism is provided by set of screws that fastened the collar to the casing. This product is applicable with liner centralizers, casing stand-off bands and semi-positive centralizer.

Slip-On Beveled Type

ASTA Slip-On Beveled Type stop collar is designed for extreme loading application. Made from seamless steel pipe to ensure durability, and incorporated with large diameter set of screws encircling the collar to strengthen locking force to the casing.

Float Equipment

ASTA float equipment is designed to endure extreme down-hole conditions. Made to comply to the API specification, this product is used to guide the casing in the hole, float the drilling fluid and slurry cement into the formation hole, reduce circulating pressure, hydrostatic head and contamination effect in the cementing process, provide landing seat for plugs and to help prevent cement re-entry to the casing after displacement.

This product is manufactured to meet casing burst and collapse pressures to withstand pressures in excess of those normally encountered in the oil well cementing.
Recommended for all casing usage, Asta Float Equipment is available with API Spec 5B thread connection and/or premium thread connection according to customer's request.

Float Equipment Product Specification:

Casing Size (in)	DIMENSIONS SHOES AND COLLARS		CASING WEIGHT (PPF) ALL GRADES	PART NO.	
	Max. OD (in)	Drill out Dia. (in)		F. SHOES	F. COLLARS
3-1/2	4.500	-	7.70 ~ 17.00	313501	323501
4	5.000	-	9.50 ~ 22.20	314001	324001
4-1/2	5.000	-	9.50 ~ 15.10	314501	324501
5	5.563	-	11.50 ~ 24.10	315002	325002
5-1/2	6.050	-	14.00 ~ 43.10	315502	325502
6-5/8	7.390	5.925	20.00 ~ 32.00	316602	326602
7	7.656	6.413	17.00 ~ 57.10	317003	327003
7-5/8	8.500	6.900	24.00 ~ 55.30	317602	327602
8-5/8	9.625	7.972	24.00 ~ 49.00	318602	328602
9-5/8	10.625	8.845	32.30 ~ 75.60	319603	329603
10-3/4	11.750	10.036	32.75 ~ 85.30	311003	321003
13-3/8	14.375	12.560	48.00 ~ 72.00	311303	321303
16	17.000	15.062	65.00 ~ 109.00	311603	321603
18-5/8	20.000	17.567	87.50	311803	321803
20	21.000	18.936	94.00 ~ 133.00	312004	N/A

Notes:

1. The lower weight limits are casing weights with minimum inside diameters equal to the drill out diameters of ASTA shoes and collars. This ensures a full-bore casing string.
2. The upper weight limits are casing weights with internal yield burst and collapse pressures equal to ASTA floating equipment.

Float Shoe

ASTA poppet valve type float shoe is designed with a spring loaded valve and constructed from special high-strength material and PDC drillable. The poppet valve has encompassed rubber seal to provide a quick, fluid-tight seal. Nose area is designed with combination of both concrete and aluminum. Internal parts are made of high quality material to achieve high strength and PDC drillable.

Regular Float Shoe

Stab - In Float Shoe

Float Collar

ASTA float collar encompasses Float Shoe product characteristic, with male and female threads connection.

Regular Float Collar

Non Rotating Float Collar

Flow Loop & Durability Test Facility as per API RP 10F or API Spec 10F

Automatic Fill Up
Float Shoe & Float Collar

Asta Automatic Fill Up (AFU) Poppet valve Float Shoes and Float Collars utilize the proven automatic filling feature. The Float Shoe and Float Collar offer a fixed radial area that allows fluid to enter the casing and seek its own height. This action lowers surge pressure on formations to minimum, reduces casing running time and minimizes the possibility of sticking. Casing can be circulated at any time at low rates, without having to convert the valve from the fill-up to the back-pressure mode.

Conversion from the fill-up to the back pressure mode can be accomplished at any time while casing is being run by introducing a predetermined flow rate to the shoes or collars.

Another advantage is if a decision is made right before the casing is about to be run in the hole that automatic filling equipment is not desirable, the valve can easily be converted manually by forcing the poppet valve to its fully open position and remove the sprig rubber. By doing this, the Shoes/Collars will require filling the casing from the top as it is run.

All advantages of the proven Asta AFU Poppet valve are made in compliance with API RP-10F or API Spec 10F. The valve area is constructed using high quality material and can be easily drilled by both PDC or Tri-cone rock bit.

Guide Shoe

ASTA guide shoe is designed to provide the following benefits such as guiding casing smoothly through surface and open hole, providing adequate circulation around shoe for washing down, assisting cement bonding and providing durable beveled guide for drilling tools in subsequent drilling operations.

This product applies to API standard thread connection such as buttress thread and S.O.W. Other thread types and sizes are available based on request.

Down Jet Guide Shoe

Down jet provide ample of circulation through side ports when the running casing is reaching the bottom. This application will add beneficial turbulence to the slurry near the shoe. The lower edge is rounded to provide smooth running tool entry. This guide shoe is PDC Drillable.

Reamer Shoe

ASTA Reamer Shoe is designed for various sizes of casing and borehole. This product is applicable for large diameter casing string with either hydraulic or mechanically set hangers.

The Reamer Shoe is made in compliance with API RP 10 F or API Spec 10F. The nose area is constructed using high quality material and can be easily drill by both PDC and Tri-cone rock bit.

This product includes the following 2 types of Tungsten Carbides : Chunky Grain Type and Button Insert Type. ASTA Reamer Shoe is available in various sizes with API Spec 5CT standard thread.

Chunky Grain Type

Button Inserts Type

Specification :

Casing Size	Hole Size	Max Tool OD	Casing Weight	Blades
5	6	5.8	18 # ~ 23 #	4 ea
5	8-1/2	8.3	18 # ~ 23 #	4 ea
5-1/2	8-1/2	8.3	17 # ~ 26 #	4 ea
7	8-1/2	8.3	23 # ~ 29 #	6 ea
7	8-1/2	8.3	32 # ~ 38 #	6 ea
9-5/8	12-1/4	12	43.5 # ~ 68 #	6 ea
13-3/8	17-1/2	17.3	54.5 # ~ 103.1 #	6 ea

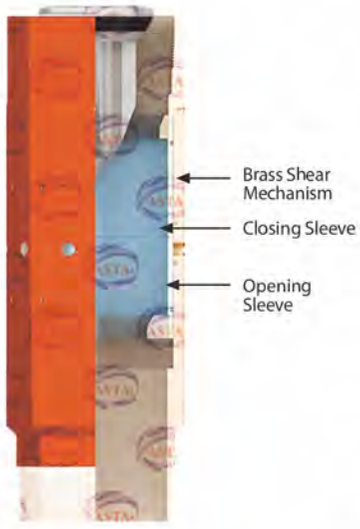
Notes:
Other size and type of cutter structure are available based on request
(*) Available in Left and Right hand spiral direction

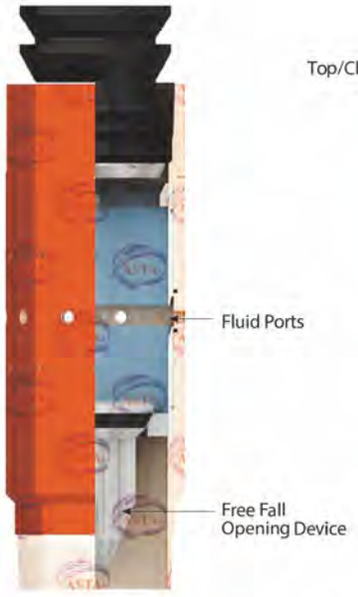
Ordering Instruction:

1. Casing size, weight and type of thread connection.
2. Hole size or max tool OD size
3. Type cutting structure and blade direction

Dual Stage Cementing Collar And Equipment

ASTA Dual Stage Cementing Collar (DSCC) is designed in mechanical system to apply the opening and closing sleeve. DSCC is used for two stage cementation of well, applicable for reducing the circulating pressure, cement contamination and quantity of cement required. This product is available in various size, type of thread connection and grade material according to API Spec 5CT. The DSCC equipment consists of Baffle Plate, First Stage/Flexible Plug, Free Fall/Opening Device and Closing Plug made from special material which is PDC drillable.





Running Position
Pin and Box threads are identical to the casing threads. Stage collar integral connection is designed for gas tightness. Seals on opening sleeve provide internal and external pressure integrity across the fluid ports.

Opened Position
Opening device has landed and, after pressure is applied, the lower set of shear mechanisms is broken and the sleeve shifts downward to uncover the fluid ports. Pumping operations can now be conducted through the stage collar.

Closed Position
The closing plug has landed and, after pressure is applied, the upper set of shear mechanisms is broken and the sleeve shifts downward, shutting off the fluid ports. Double seals above and below the ports provide pressure integrity.


Top/Closing Plug


First Stage / Flexible Plug


Free Fall / Opening Device


Battle Plate

1. ASTA float shoe and float collar along with the ASTA Dual Stage Cementing Collar, are installed in the casing string and the casing is run to bottom.
2. The baffle plate is installed into the land on the ASTA float collar.
3. Circulation is established and first-stage cement is mixed and pumped.
4. The first-stage sealing plug is launched and cement is displaced. At the conclusion of displacement, the Flexible Plug lands and affects a seal against the ASTA Float Collar.
5. The free-fall opening device is dropped and allowed to gravitate to position. Pressure is applied to the casing and the stage collar is opened.
6. Circulation is established and second-stage cement is mixed and pumped.
7. The Top/Closing plug is launched and cement is displaced. At the conclusion of displacement, the closing plug lands and affects a seal in the stage collar. Pressure is applied to the casing and the stage collar is closed.

Cementing Plugs

ASTA cementing plug product line includes regular and non-rotating plug. Each product comprises of top, bottom and combination plug type.

REG Bottom Plug

REG Top Plug

Regular Cementing Plugs

ASTA regular cementing top & bottom plug are available in various size casing sizes with completely applicable inserts core which increasing the strength. These inserts core are applicable for the bottom hole-circulation with temperature exceeds 400°F. The ASTA regular cementing top & bottom plugs are designed to land and seal on floating equipment. This product is designed for easy drilling with tri-cone bit and PDC.

Non Rotating Bottom Plug

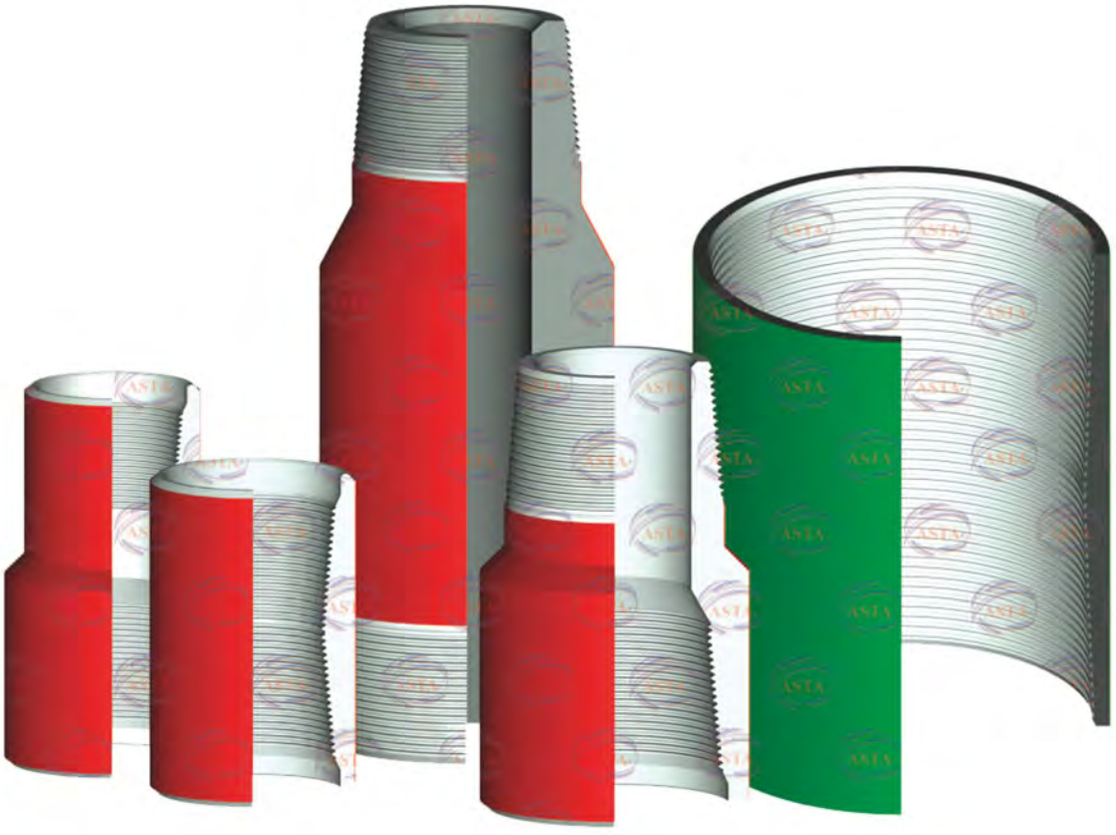
Non Rotating Top Plug

Non Rotating Cementing Plugs

ASTA Non-rotating cementing plugs are designed to minimize drilling time. Available in various sizes, this product is built with reinforced locking teeth which will lock plugs and the floating equipment together to eliminate rotation of the plugs. ASTA Non-rotating cementing plugs are designed with tri-cone bit or PDC drillable materials inserts core.

Coupling & Connector

ASTA Coupling & Connector are manufactured in compliance with API Spec 5 CT license. This product is available in various size and types for different implementation and requirement. Manufactured with proper quality control, inspection and testing method, ASTA ensures the quality of thread and grade to meet market requirement.



Rod Coupling, Sub Coupling & Rod Connector

ASTA Rod Coupling and Connector are designed to be used on Insert Pump, Tubing Pumps and Progressive Cavity Pumps.

Manufactured in compliance with API spec 11B latest edition, this product is made from carbon or alloy steel in order to achieve long product lifespan.

Specification :

Nominal Size (in)	OD (in)	Min. OAL (in)	Grade
5/8	1.500 (SH: 1.250)	4.000	K, C, D
3/4	1.625 (SH: 1.500)	4.000	K, C, D
7/8	1.812 (SH: 1.625)	4.000	K, C, D
1	2.187 (SH: 2.000)	4.000	K, C, D
1-1/8	2.375	4.500	K, C, D

Notes:

**) other grade and size are available based on request*

Calibrated API Spec 11B gauges are used to ansure the accuracy of the thread connection

Shear Coupling

Shear Rod Coupling is the key component in the successful performance of Sucker Rod String. ASTA Shear Rod Coupling designed with special safety integral slot key to protect shear from rotational torque, thus can be properly run into Insert Pump, Tubing Pumps and Progressive Cavity Pumps.

ASTA Shear Rod Coupling consists of two cou-plings (male and female section) which com-ply with API spec 11 B specification and one shear pin to joint the both sections. The shear pin is made from alloy steel for long product life.

Specification :

Nominal Size (in)	OD (in)	Min. OAL (in)	P/N	Available Shear Strength (lbs)*
5/8	1.500 (SH: 1.250)	7.500	1.20.7-0625-01	14000 to 30000
3/4	1.625 (SH: 1.500)	7.500	1-20.7-0750-01	14000 to 30000
7/8	1.812 (SH: 1.625)	7.500	1-20.7-0875-01	14000 to 30000
1	2.187 (SH: 2.000)	7.500	1-20.7-1000-01	20000 to 40000
1-1/8	2.375	7.500	1-20.7-1125-01	20000 to 40000

Notes:

*) this specification is subject to ± 5% tolerance.
SH = Slim Hole size

*) other grade and size are available based on request

Sucker Rod On-Off Tool

Asta Sucker Rod On-Off Tool is designed to be applied in any rod lift well, to or disconnects from sucker rod-string, at any point based on the location of the tool placed in the rodstring. The tool is installed and connected to the rodstring which is expected can be disconnected. Available in all sucker rod sizes from 5/8" to 1-1/8" for variation tubing sizes from 1-1/2" to 3-1/2" or as per customer requirement.

Asta Sucker Rod On-Off Tool consist of top bushing, external spring, internal spring, ball, locking pawl / slip block, sleve, bottom latch conection, which each component made from special material grade based on the well conditions. The tool is available in both right and left hand operation.

Rod Guide

Asta Rod Guides is the rod string and reduce friction and also reduce wear on sucker rods and tubing. It is designed to be used on Insert Pump. Tubing Pump and Progressive Cavity Pump and it is manufactured In compliance with API spec 1 1B the latest edition, this product is mode from carbon or alloy steel in order to be more durable.

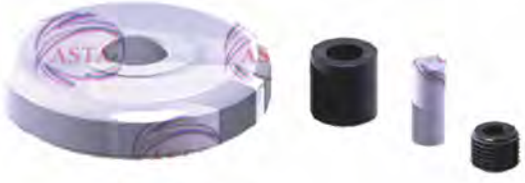
Advantages :

- ✓ Reduces wear on sucker rod and tubing
- ✓ Lets rod string "fall" smoothly and easily upon contact with the tubing.
- ✓ Reduces energy requirement for pump.
- ✓ Eliminates "wiping" of inside of tubing.
- ✓ Eliminates need for any other coupling device.
- ✓ Wheels ore field replaceable.

Rod Guide & Coupling Body

Standard guide &coupling bodies ore mode from cold rolled steel (Grade-D. AISI4140 or equivalent) and as per customer requirement.

Details of the wheel assembly by using a hexagonal set lock screw on one side, thus more secure and easier to install and replacement.



Sucker Rod Coupling as per API Spec 11B

Wheels and Roll Pins

Wheels are set on alloy Steel journal ; hardened roll pins and hexagonal set lock screw. Standard wheels mode of AISI1045 or equivalent or as per customer requirement.

Guide Couplings should be Installed :

1. On the first two or three rods above the bottom hole pump.
2. Intermittently throughout the rod string where wear is indicated on rods or tubing.
3. Where known holes deviation occurs.
4. On the first two or three rods below the stuffing box.

Available Size:

Asta Rod Guides are available in variation sizes of sucker rod from 5/8" to 1-1/8" for tubing 2-3/8" up to 4-1/2".with end thread connection are available in box or pin as per requirement and manufactured In compliance with API spec 11B the latest edition. Other specific requirement are available upon request

Lead Seal Packer

ASTA Lead Seal Packer is a drive-on production packer type that can be applied in the gravel pack completions job. It holds the gravel pack securely in place and serves as an isolation production packer.
This product is run by applying weight with the setting string. Weight expands the pack offs against the casing wall. When runs in the well, the packer will hold securely against normal upward forces from tubing tension or pressure.

Features and benefits:

- ✓ Easy running in the production tubing or string.
- ✓ Eliminates upper production packer in the gravel pack completion job.
- ✓ Isolate th production packer pack-off elements effectively
- ✓ Pull out tubing without disturbing the packer by slicking off and pulling straight up .
- ✓ Prevent gravel pack sand to accumulate on the top screen
- ✓ No compressive load on the screen.

ASTA Lead Seal Packer Parts

Lead Seal Assy. Part List

PART NAME	DESCRIPTION	PART NO.	QTY REQ'D
1. BODY	Alloy steel 4130/4140, with strong left hand of square thread connection, to easy install with the tool.	2-100-14-1	1
2. LEAD SEAL	95% lead (pb), there are 8 pc lead seal, to assure that the production packer packoff elements isolate effectively.	2-100-14-2	8
3. SPACER RING	Alloy Steel 4130/4140, to leveling the Lead Seal.	2-100-14-3	1
4. UPPER GAGE RING	Alloy Steel 4130/4140, with Wicker Thread, to lock the lead packer when impacted by Swanging tool.	2-100-14-4	1
5. LOCK RING	Alloy Steel 4130/4140, with Wicker Thread	2-100-14-5	1
6. LOCK PIN	Iron Lock Pin to secure the Lock Ring of the Body.	2-100-14-6	1
7. BRAS SHEAR PIN	Brass screw with approx, breaking point : 5000 lb.	2-100-14-7	4

Lead Seal Specification

Nominal Size (in)	Approx Weight (kg)	Max. Tool OD (in)	Overall Length (in)	Casing Size (in)	Casing Weight (ppf)	Part No.
4-1/2" x 7"	40	6.000"	18.750"	7"	17.00 ~ 29.00	2-100.14-4.500
5-1/2" x 9-5/8"	90	8.500"	26.000"	9-5/8"	32.30 ~ 47.00	2-100.14-5.500
6-5/8" x 10-3/4"	100	9.625"	26.000"	10-3/4"	32.75 ~ 55.50	2-100.14-6.625

Notes:

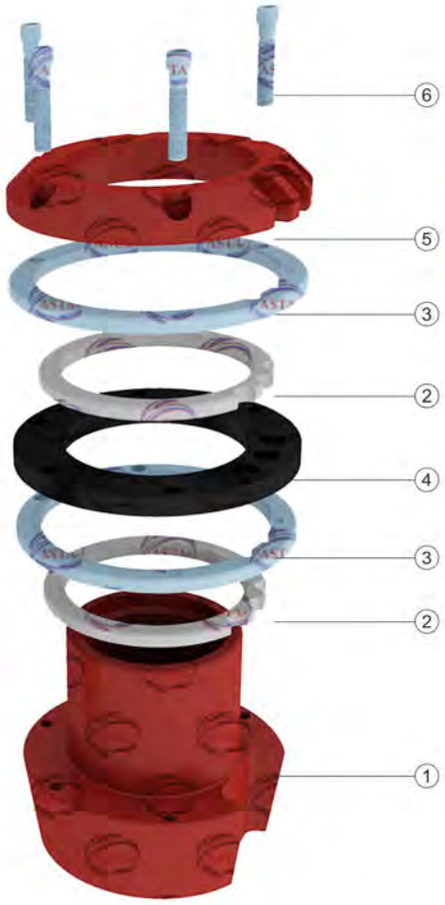
**) other grade and size are available based on request*

Tubing Hanger with Pack-Offs

ASTA Tubing Hangers with pack-offs allow the independent suspension and sealing of tubing strings, enabling simultaneous production or injection to or from separate zones. They require one or two aligning pins in the tubing head bowl and are compatible with both tubing heads.

Features and Benefits :

- ✓ Made of Min 60 K Yield Strength Alloy Steel Material, with oil resistance Nitrite Rubber for packing rubber.
- ✓ Used where down-hole control lines or tubing manipulation are not required.
- ✓ Fits to inside bowl Top Flange of Tubing Spool and API Standard Box Top & Bottom Connection with provision for ESP, flat reda cable.
- ✓ Working pressure 3,000 psi and 250° F working temperature.
- ✓ Available in various sizes and types.



Tubing Hanger Pack List

Item	Descriptions	Part No.	Material	Req'd
1	Hanger Body	TH-01.1	60 K. Yield Strgth	1
2	Inner Ring	TH-01.2	60 K. Yield Strgth	2
3	Outer Ring	TH-01.3	60 K. Yield Strgth	3
4	Seal Rubber	TH-01.4	Nitrite Rubber	1
5	Cap Ring	TH-01.5	AS - 60 K. YS	1
6	Socket Head Bolt	TH-01.6	A193 / 194	5

The Asta Tubing Hanger parts, such as Cap Ring ; outer Ring and Hanger Body, are suitable for profile National Foster and Gray

Shear Safety Joint

ASTA Shear Safety Joint designed with special safety integral slot key to protect shear from rotational torque.

This product consists of two sections (male and female section) and several shear pins to joint both sections. Made from alloy steel for long lifespan, ASTA Shear Safety Joint also uses special rubber seals to endure 350° F ~ 450° F temperature range steam.

Specification :

SIZE (in)	Min. Dia (in)	Length (in)	API 5CT Thread Connection	Available Shear Strength (lbs)*	P/N
2-3/8	2.875	8	NUE 10 RD or EUE 8 RD	40.000 to 50.000	02-10.30-2.375
2-7/8	3.500	10	NUE 10 RD or EUE 8 RD	40.000 to 50.000	02-10.30-2.875
3-1/2	4.250	12	NUE 10 RD or EUE 8 RD	50.000 to 70.000	02-10.30-3.500
4	4.750	12	NUE 10 RD or EUE 8 RD	50.000 to 70.000	02-10.30-4.500

Notes:

**) this specification is subject to ± 5% tolerance.*

**) other grade and size are available based on request*

Tubing Check & Bleeder Valve

Tubing Check Valve

Designed to keep the crude oil in the tubing from returning to the reservoir so that the submersible pump remains oil even though the pump is being turned off.

Tubing Bleeder Valve

Designed to remove the crude oil in the tubing (re-entry into the reservoir when the tubing is lifted / removed during the well service.

Features:

- ✓ Has a minimum number of parts and seal
- ✓ A friction pad holds the drain closed, safeguarding against accidental opening while running
- ✓ Drain tubing above an anchor, packer or submersible pump equipped with a check valve and pump in a high angle or straight hole
- ✓ Reduce pollution and fire hazard
- ✓ Eliminates expense and wasted time of wet job
- ✓ Fully tubing I.D.

Specifications :

Tubing Size [in]	API PIN x BOX Connection	Tool OD [in]	Tool ID [in]
2-3/8	EUE / EUE	3.063	1.994
2-7/8	EUE / EUE	3.670	2.441
3-1/2	EUE / EUE	4.500	2.992

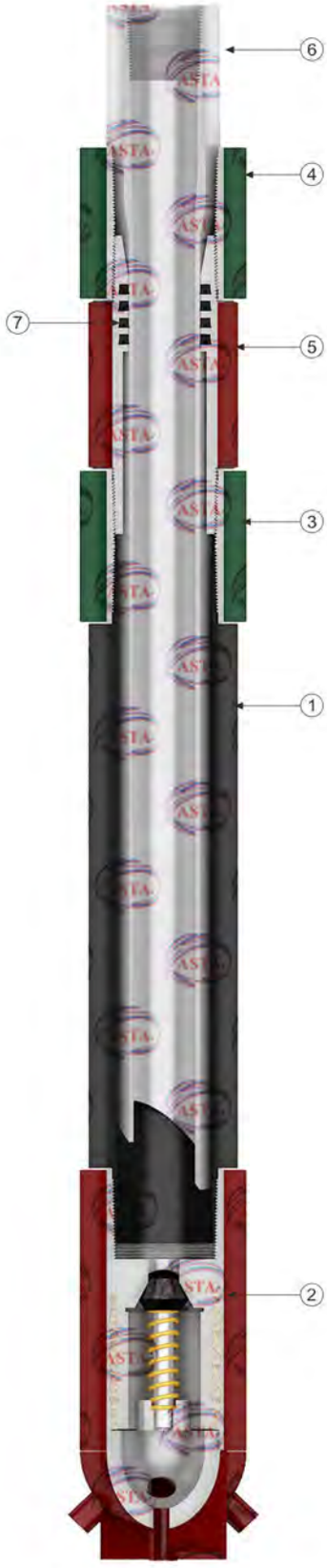
Installation and Operation:

Asta Bleeder Valve should be installed box up & pin down at the desired depth in the tubing string. Before running in , make certain the drain is closed by turning the shear pin .

NOTE :
Special grade, size and thread connection for specific applications are available upon request

Wash Down Shoe

ASTA Wash-Down Shoe assembly tools are designed with high back pressure Float Shoe (2). The poppet valve assy. consists of spring-loaded valve and has rubber seal to provide a quick fluid-tight seal. Nose is designed with blade and jet nozzle providing fluid distribution smoothly through these raised ports, also to achieve circulation fluid to be established when the string is landed on the bottom. The Body is an API Seamless Casing grade J/K-55 or requested grade with Pin Connection (1) that jointed into API Coupling with similar grade of material and type of connection (3) to connect to the collar (5). The Collar of Wash Down Shoe consist of API Seamless Pipe grade J/K-55 with Pin Connection and designed with rings and grove to place four Poly Pack Seals (7) which get fluid-tight seal avoiding the back pressure during run in. ASTA Wash Down Shoe is equipped with Polished Stringer (6) consist of API Seamless Tubing grade J/K-55 with Box Connection to reach maximum flow into the outer casing or well bore through the Float Shoe. Body of stringer is polished to assure the stringer quite seal



ASTA Wash Down Shoe

Features and benefits :

- Easy run in the production tubing or string
- Smooth distribution of fluid into the outer casing or annulus.
- Isolate back flow of fluid into the string
- Establish circulating of fluid into the outer casing or annulus.

Wash Down Shoe Product Specification :

Item	Qty	Part	Description
1	1	Body	Seamless Casing 6-5/8" x API-5CT Pin Connection , Grade J/K-55
2	1	Float Shoe	6-5/8" Poppet Valve c/w Blade & Ø 1" x 5 ea Jet Nozzles , Grade J/K-55
3	1	Coupling	6-5/8" API-5CT Box Connection Grade J/K-55
4	1	Sub Coupling	6-5/8" API-5CT Pin Collar w/ 4 x 4-1/2" ID Seal Grove Grade J/K-55
5	1	Collar	Seamless Pipe 6-5/8" x API-5CT Pin Connection Grade J/K-55
6	1	Polished Stringer	4-1/2" x 6 FT Long w/ 4-1/2" API-5CT Box Connection , Grade J/K-55
7	4	Pack Off ("V" Seal)	4-1/2" ID Poly Pack Seal (Replaceable)

Notes :
*) other size, grade and type of connection are available based on request

Expansion Joint

ASTA Expansion Joint is a versatile expansion joint that can be used at standard temperatures, and is also designed to be dressed with seals for applications over 300°F. Placed above the packer, their telescoping design reduces the possibility of the tubing and completion equipment being deformed due to extreme temperature changes in the tubing string. ASTA expansion joints are equipped with specially machined, high-temperature, V-type seal rings with a unique anti-extrusion ring that prevents extrusion of the packing at elevated temperatures. These tools maintain the pressure integrity of the tubing and allow the string to safely expand and contract. The expansion joint can be manufactured to any length to suit operating requirements and to allow safe installation and retrieval of the tubing string and completion components.

Features and Benefits:

- ✓ Withstands large temperature variations
- ✓ Allows torque to be transmitted through joint
- ✓ Eliminates potential leak paths
- ✓ Reliable operation over temperature extremes
- ✓ Safer installation and retrieval
- ✓ Full-tubing ID through expansion joint
- ✓ Manufactured to customer requirements

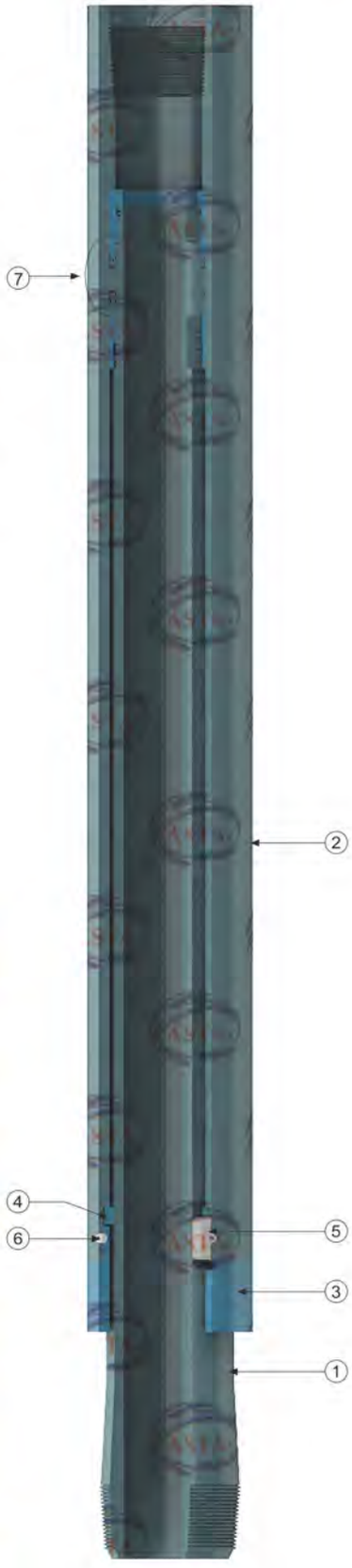
Expansion Joint Part List :

Item	Description	Part No.	
		2-7/8	3-1/2
1	Splinted Mandrel : w/ Pin Thread Connection	27 - 280 - 01	35 - 280 - 01
2	Body : w/ Box Thread Connection	27 - 280 - 02	35 - 280 - 02
3	Body Head : Stopper Mandrel	27 - 280 - 03	35 - 280 - 03
4	Body Head : Latch-On Stopper spacer	27 - 280 - 04	35 - 280 - 04
5	Bar Key	27 - 280 - 05	35 - 280 - 05
6	Hex Set Screw	27 - 280 - 06	35 - 280 - 06
7	Seal Group	27 - 280 - 07	35 - 280 - 07

Expansion Joint Part Specification :

Tubing		Dimension				
Size (in)	Weight (PPF)	Min Casing Size		Max. Tool OD (in)	Drift Dia (in)	Stroke (ft)
		OD (in)	Weight (PPF)			
2-7/8	6.5	5-1/2	15.50	4.000	2.347	4
						6
3-1/2	9.3	6-5/8	20.00	5.000	2.867	8
						10

Notes :
**) other size and specification are available based on request*



ASTA Expansion Joint

Casing Pack Off

ASTA Casing Pack Off is used to pack surface and production casing. This product is designed to endure temperature of 450 Deg. F and to accommodate 300 psi up to 600 psi service pressure.

Asta Casing Pack Off is consist of:
- Upper flange is made from Plate ASTM A 36/SS-400, as seal presser to pack off Outer casing with production casing pipe.
- Body CPO is made of seamless casing with the same grade and thread connection with casing so it can be connected properly with pipe casing which to be installed with the CPO.
- Outlet Box 2 is made from seamless Coupling stock, serves for pressure test.
- CPO Seal is made of Non Asbestos material serves to withstand the pressure of outer and inner casing up to 600 PSI
- Fastener (bolt & nut) is made of steel material to lock the flange until seal hold the surface of the casing pipe.

Available in all sizes ranging from 3-1/2" x 7" to 13-3/8" x 18-5/8". Thread Connection: Round & Buttress Thread, as per API Spec 5CT (NUE, STC. LTC & BTC). Grade Material : J/K-55, N/L-80. Other size & specific requirement are available based on request

Cable Feed-Thru Tubing Hanger

ASTA Cable Feed-Thru Tubing Hanger is designed to be installed on Tubing Head Spool, with pack-off seal flat for submersible pumps. Available in various sizes, Type of Thread Connection and Grade Material ASTA Tubing Hanger with off-package allows independent suspension and sealing of tubing strings, enabling simultaneous production or injection to and from separate zones. They need one or two align pins on the Tubing Head Bowl and are compatible with Tubing Head Made of Alloy Steel Min. 60 K Yield Strength, with oil resistance Nitrite Rubber for packing rubber. Used if down-hole control lines or tubing manipulation is not required.

Suitable for inside the Top Flange Bowl of Tubing Spool and Standard Box Top under Connection with provision for ESP, cable breaks down. Working pressure 3,000 psi and 250° F working temperature. Made in accordance with customer needs.

Pipe Sleeve

Asta's Pipe Sleeve is designed to repair worn out and leaking Line Pipe due to abrasion or corrosion as a result of severe environment condition or long lifespan. So it will be easier in the rejuvenation of the Line Pipe rather than replacing it with new pipes. Repair and Maintenance using Asta Pipe Sleeve can be done without stopping the production.

Pipe Sleeve is fabricated by Astajaya by pressing process (Press Machine) so that the sleeve has a precise shape and dimension which makes it easier to install (welding) in the field, when compared to the roll processed pipe sleeve (using Rolling Machine).

The Pipe Sleeve ends have perfect bevel for v-welding, unless sheared square edges are requested.

The coating of pipe sleeve is one of our major concerns to make this pipe sleeve lasts a long. Prior to coating, the pipe sleeve must be sand blasted, then coating can be applied in accordance with customer's requirement

Features & Advantages

- ✓ Made of steel plate ASTM A36 / ASTM A 516 GR 70 / JIS 3101 SS400 or according to customer's requirement.
- ✓ Perfect and precise semi-circle shape makes it easy to be installed.
- ✓ Each size sleeve is interchangeable
- ✓ Available in various sizes (4" to 42") or according to customer's request.

Dimensional & Size Available :

Longitudinal edges are beveled to 30 degrees (+5 degrees -0 degrees), with a root face (land) of 1/16" (+-1/32"). Mechanically beveled or by using plasma torch burning tool. Beveled ends are available upon request. Inside diameter (I.D.) of each Asta's Pipe Sleeve is fabricated to match the outside diameter (O.D.) of standard nominal line pipe (bare) with tolerances as shown on below table:

Wall Thickness	Size	Tolerance
1/4" plate	4" thru 12"	(+0"-1/8")
1/4" – 3/8" plate	14" thru 42"	(+0"-1/4")
1/4" - 3/8" plate	6" thru 12"	(+0"-1/8")
1/4" - 3/8" plate	14" thru 42"	(+0"-3/16)
3/8" plate	8" thru 12"	(+1/8"-0")
3/8" plate	14" thru 20"	(+1/16"-1/16")
3/8" plate	22" thru 42"	(+0"-1/4")
1/2" plate	12" thru 20"	(+1/16"-1/16")
1/2" plate	22" thru 42"	(+1/8"-1/8")

Note : Other size, grade of material or specific requirement are available based on request

Elbow Sleeve

Besides fabricating pipe sleeves, Astajaya also develops Elbow Sleeves, having the same function as the pipe sleeve except Elbow Sleeves are used for repairing pipe bends in pipe line.

Asta Elbow Sleeve is made half piece to ease field installation. Installing Asta Elbow Sleeve does not require to remove the worn out existing elbow, but just sleeve it on the existing elbow then weld the entire sides. Asta Elbow Sleeve is very practical and economical.

Asta Elbow Sleeve is made of a specific Cast Steel material that is compatible with the pipe line material which is commonly used in the oil industry. It is weldable and very easy to be installed in the field.

Asta Elbow Sleeve ends have perfect bevel for v-welding, unless sheared square edges are requested.

The coating of elbow sleeve is one of our major concerns to make this sleeve lasts a long. Prior to coating, the Elbow sleeve must be sand blasted, then coating can be applied in accordance with customer's requirement.

Features & Advantages

- ✓ Made of cast steel grade ASTM A36 / ASTM A 516 GR 70 /JIS 3101 SS400 / or according to customer's requirement.
- ✓ Perfect and precise semi-circle shape makes it easy to be installed.
- ✓ Each size sleeve interchangeable
- ✓ Available in various sizes (4" to 40"), various thickness (3/8" to 1"), various angle (45° - 90°) or according to customer's request.

Various Products

Seal Nipple & On-Off Tool

ASTA On-Off Tool Connector with "J" Slot left or right release to accommodate 80.000 LBF or more load. Available in various sizes, types of thread connection and grade material.

Bull Plug

ASTA Bull Plug is designed to cover or plug the end of casing or tubing and other outlet. Available in various sizes, types of thread connection and grade material.

SealClamp & WeldCap

SealClamp & WeldCapPipelines need to be maintained and eventually repaired to prevent or stop leaks caused by corrosion, holes, and other factors. Asta SealClamp & WeldCap can solve those maintenance and repair while the line is in use; preventing downtime and saving cost. Asta SealClamp & WeldCap are designed and manufactured in detail and can be used easily, made from high temperature and high pressure resistant materials (400 deg F, 2500 Psi) and can be easily and safely welded on the Pipelines.Available in variations size (4"up to 42") or according to customer request.

Rubber Products:

Pack Off Rubber, Stripper Rubber, "O" Ring and Pulsation Dampener Replacement Parts, Swab Cup, Pack Off Rubber, Stuffing Box Packing, etc. Available in various sizes and types of rubber grade.

Our customers are oil and gas industrial companies who operate in the Indonesian territory and we also have been exporting worldwide, among others to Egypt, Kazakhstan, Pakistan, United Arab Emirates, Australia etc., No matter where you are operating in, Astajaya will readily support your needed Cementing & Casing Accessories and Production Equipment.

Customer's satisfaction has always been our top priority target which we confidently believe to be able to achieve by providing expected quality product within acceptable delivery time.


ASTA