

# AZM OILFIELD TECHNOLOGIES



PRIMARY CEMENTING AND FLOAT EQUIPMENT

www.azmoilfield.com

## **Introduction of AZM Group**

AZM oilfield Technologies is promoted by a team of highly skilled Oil and Gas sector experts to offer seamless services for Oilfield drilling needs.

AZM has full fledged oilfield tools manufacturing unit in Faridabad city near Delhi , which is Engineering hub of North India, This new facility established in 2024 focusses on manufacture of Centralizer, Stop collars, Float equipment, Completion tools and other Casing accessories and downhole tools confirming to API requirements.

AZM oilfield Group was established in 2019 and we have been performing consistently to excel in supply of Oilfield tools and solutions to our clients.

AZM has stake in Cementing chemicals manufacturing unit and our trading division is authorized marketing agent for API Certified pipe mills and Oilfield tools from India, China, Russia, Ukraine, Spain, Singapore and Japan.

Our group has attained an unassailable position of leadership in Oilfield Tools supply and service Industry. We have established our reputation in the global market as a reliable partner for supply of OCTG items, Centralizers, Float Equipment, completion tools and Drilling Chemicals. Offering full range of items under one group makes it easy for procurement and drilling team by improving response time ,ensuring faster delivery and execution of every job.

We are working as a de facto procurement department for a number of service companies in Middle east and Africa by executing orders worth 27 million USD in last two years.

AZM oilfield is promoted by experts in the Oil and Gas exploration sector with wide expertise in field operations, manufacturing and services for offering full range of drilling services, expertise of this pool of experts gives tremendous advantage to AZM in interpreting the requirements of the client correctly and offering a solution which is suitable for the client needs in most economical and timely manner.

Our Management team has experience of executing several LTSK with premier exploration companies such as Saudi Aramco, ADNOC, KOC, Sonatrach, QP, PTTEP, NPDC, etc.

Our production and Quality team has experience of manufacturing centralizers for two decades, AZM plant specializes in manufacturing full range of Flexible and rigid type of centralizers in sizes from 2 3/8" to 30" to suit specific well requirements.

Centralizers are supposed to provide zonal isolation and prevent gas migration during cementing to enable establishment of a uniform cement column around the casing. Apart from capability in manufacturing variety of centralizers we have the competence to offer right type of centralizers for specific well conditions.

We have patented software which is utilized to offer optimum standoff with no. of centralizers based on well data related to depth and well trajectory and type of mud.

Our state of the art manufacturing unit is equipped with latest machines, expert engineers and trained quality personnel in manufacture of Oil tools and centralizers. We have a well established quality Manual in line with the requirements of APIQ1 and specific standards governing manufacture of Oilfield tools and all instructions and procedures are available to workers and supervisor to plan manufacture according to strict quality control norms.

Workers and supervisors are trained into specific requirements of the quality guidelines through process instruction, which are monitored and recorded at pre - decided intervals for conforming to quality norms.

All raw material are given traceability numbers and can be traced backed their original lot numbers through route cards.

All machines are calibrated in timely manner and quality and production personnel are given refresher training from time to time to keep them aware and focused and aware of quality aspects that impact our performance.

Before start of manufacturing every product goes through validation process where prototype are designed and tested to check if these are meeting the performance requirements and once quality department is fully satisfied with performance new products are offered for field test and upon successful filed test products are or design is taken into full scale production.



## **Our Products Details**

## Centralizers

- · Hinged Bow Spring Centralizer
- Hinged Welded Spring Bow Centralizer
- Slip-on Welded Spring Bow Centralizer
- Slip-on Welded Bow Centralizer
- Non-welded Hinged Positive Bow Centralizer
- Welded Centralizers
- Non-welded Semi-rigid Bow Spring Centralizer
- Hinged Bow Spring Centralizer with Turbo Fins
- Drill Pipe Centralizer
- Single Piece Centralizer
- Spiral Vane Solid Centralizer
- Straight Vane Solid Centralizer
- Solid Body Low Drag Roller Centralizer
- Solid Body Low Torque Roller Centralizer
- Spiral Vane Thermoplastic Centralizer
- Wellbore Wipers
- Cement Baskets
- Hinged Bolted Stop Collar
- Slip-On Stop Collars with Set Screws beveled

## Float Shoe & Collar

- Single Valve Float Shoe and Collar
- Double Valve Cement Float Shoe and Collar
- Duplex Cement Float Shoe and Collar
- Non-Rotational Cement Float Collar

## Cement Plugs

- Conventional Cement Plugs
- Non-Rotational Plug
- Centralizer Placement Software
- Casing Table





## **Hinged Bow Spring Centralizer**

#### **Non-weld Hinged Bow Spring Centralizers**

- AZM Oilfield's bow springs are manufactured from high-quality spring steel and heat-treated to achieve minimum starting and running forces. The heat-treated alloy provides flexibility while minimizing damage when moving downhole.
- Installation on the casing pipe is very convenient since it simply requires the placement of the two assembled halves on the pipe and the insertion of the pin in the end collar hinge.
- The centralizer when unassembled makes a compact package, greatly reducing shipping cost; its assembly on site is straight forward.
- AZM Oilfield offers a wide range of bow heights and shapes enabling the customer to make an optimum choice matching their requirements .
- These centralizers are designed to be installed and latched on over stop collars or casing collars

#### **Options**

- Hinged Non-weld Bow Spring Centralizers are available in the sizes 2 1/8" to 30"
- Special sizes or combinations can be made available on request

- Hinged Stop Collar
- Hinged Stop Collar with Spiral Nails
- Stop Collar with Set Screws





## **Centralizer Bow Configuration & Standard Bow Height**

	AZM-BS 0	AZM-BS 1	AZM-BS 2	AZM-BS 3	AZM-BS 4
in.	0.965	1.161	1.437	2.303	3.051
mm	24.5	29.5	36.5	58.5	77.5

		AZMN	lon-w	reld Bov	v Cen	traliz	zers (	AZM-	NWB)		
Casing Size in.	Bow Type	Max. O.D.Size mm	Max. O.D. Size mm	Casing Size in.	Bow Type	Max. O.D. Size mm	Max. O.D. Size mm	Casing Size in.	Bow Type	Max. O.D.Size mm	Max. O.D. Size mm
4 1/2	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	6.579 6.972 7.524 9.256 10.752	167.1 177.1 191.1 235.1 273.1	7 5/8	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	9.760 10.154 10.705 12.437 13.933	247.9 257.9 271.9 315.9 353.9	13 3/8	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	15.567 15.961 16.512 18.244 19.740	395.4 405.4 419.4 463.4 501.4
5	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	7.098 7.492 8.043 9.776 11.272	180.3 190.3 204.3 248.3 286.3	8 5/8	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	10.756 11.150 11.701 13.433 14.929	273.2 283.2 297.2 341.2 379.2	16	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	18.193 18.587 19.138 20.870 22.366	462.1 472.1 486.1 530.1 568.1
5 1/2	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	7.614 8.008 8.559 10.291 11.787	193.4 203.4 217.4 261.4 299.4	9 5/8	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	11.748 12.142 12.693 14.425 15.921	298.4 308.4 322.4 366.4 404.4	18 5/8	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	20.854 21.248 21.799 23.531 25.028	529.7 539.7 553.7 597.7 635.7
6 5/8	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	8.728 9.122 9.673 11.406 12.902	221.7 231.7 245.7 289.7 327.7	10 3/4	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	12.902 13.295 13.846 15.579 17.075	327.7 337.7 351.7 395.7 433.7	20	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	22.248 22.642 23.193 24.925 26.421	565.1 575.1 589.1 633.1 671.1
7	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	9.126 9.520 10.071 11.803 13.299	231.8 241.8 255.8 299.8 337.8	11 3/4	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	13.898 14.291 14.843 16.575 18.071	353.0 363.0 377.0 421.0 459.0	24	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	26.298 26.692 27.243 29.015 30.511	667.9 677.9 691.9 736.9 774.9

PERFORMANCE REQUIREMENT: As Per API Specification 10D

Force In lbs.

Casing Size in inches	Starng Force (max.)	Restoring Force (min.)
4 1/2	464	464
5	520	520
5 1/2	62	62
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	2024	1020
11 3/4	2160	1080
13 3/8	2440	1220
16	2600	1300
18 5/8	3500	1750
20	3760	1880

AZM Bow-Spring Selection Guide Non-Weld Centralizer

Casing Size in.	Bow Type	Preferred Hole Size Combination In.	Casing Size in.	Bow Type	Preferred Hole Size Combination In.
4 1/2	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	6, 6 1/8, 6 1/4 - - - 7 7/8, 8 ½ -	9 5/8	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	- 11 3/8 11 3/8 11 3/4, 12 1/4, 12 1⁄2, 12 5/8 -
5	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	6 1/4 6 3/4 - 8 1/2 12 1/4	10 3/4	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	- 12 1/4 12 1/4, 12 12, 12 5/8, 13 1/2 - 14 3/4
5 1/2	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	6 5/8 - 7 7/8 8 3/8, 8 12, 8 3/4 -	11 3/4	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	- - - -
6 5/8	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	7 7/8 8 ½, 8 5/8 8 5/8, 8 3/4 - -	13 3/8	AZM-BS-0 AZM-BS-1 AZM-BS-2 AZM-BS-3 AZM-BS-4	- 14 3/4 - 15 1⁄2, 16 17 1⁄2

## **Hinged Welded Spring Bow Centralizer**

#### **Performance Features**

- Welded centralizers have more running force when compared to the non welded centralizers Bows
  can be configured for any hole diameter with a choice of six standard bow heights for optimum
  starting and restoring forces.
- The compatibility of the bows with various end collar sizes reduces inventory requirements and provides tremendous flexibility of casing and hole size combinations.
- A high restoring force combined with a low starting force is achieved with all bow heights .
- Bow springs are of high quality alloy steel, bent to shape and heat treated under controlled temperature / time cycles for consistent spring chacteristics.
- The bows provide an excellent standoff, which allows for an efficient mud and cement displacement.
- End collars are of widened-design for greater frame strength and to prevent the bows from hitting the casing.
- Hinge locking pins are made of high-strength steel for maximum structural strength.
- Is able to centralize the casing pipe in vertical, deviated and horizontal wells.
- Its high performance characteristics are combined with an easy field assembly.

#### **Options**

- Welded hinged bow spring centralizers are available in sizes 2 1/8" to 30"
- Special sizes or combination can be made available on request

- Hinged Stop Collar
- · Hinged Stop Collar with Spiral Nail s
- Stop Collar with Set Screws







## **Slip-on Welded Spring Bow Centralizer**

#### Slip-on Welded Spring Bow Centralizer

- The compatibility of the bows with various end collar sizes reduces inventory requirements and provides tremendous flexibility of casing and hole size combinations.
- Bows can be configured for any hole diameter with a choice of six standard bow heights for optimum starting and restoring forces.
- Bow springs are of high quality alloy steel, bent to shape and heat treated under controlled temperature / time cycles for consistent spring characteristics.
- Its high performance characteristics are combined with an easy field installation on pipe rack.

#### **Options**

- Slip-on welded spring bow centralizers are available in sizes 2 1/8" to 30"
- Special sizes or combination can be mad available on request

- Stop Coll a r with Set Screw
- Slip-On Stop Collar with Set Screws with one side Beveled





## **Slip-on Welded Bow Centralizer**

#### **Performance Features**

- A slip-on end collar provides extra robustness to the centralizer.
- The presence of set screws on the end collar additionally provides a non-rotational feature to the centralizer.
- End collars are of widened-design for greater frame strength and to prevent the bows from hitting the casing.
- The compatibility of the bows with various and collar sizes reduces inventory requirements and provides tremendous flexibility of casing and hole size combinations.
- Bows can be configured for any hole diameter with a choice of six standard bow heights for optimum starting and restoring forces.
- Bow springs are of high quality alloy steel, bent to shape and heat treated under controlled temperature / time cycles for consistent spring characteristics.
- Its high performance characteristics are combined with an easy field installation on pipe racks.

#### **Options**

- Slip-on welded spring bow centralizers are available in sizes 2 1/8" to 24"
- Special sizes or combination can be made available on request.

- Stop Collar with Set Screws
- Slip-On Stop Collar with Set Screws with one side Beveled





## **Non-welded Hinged Positive Bow Centralizer**

#### **Performance Features**

- AZM Oilfield's non-welded hinged positive bow centralizers are designed for AZM Oilfield the casing pipe in vertical, deviated, and horizontal wells
- High-quality steel alloy bows with flat bottom U-profiles of different depths permit an extremely high fluid passage.
- The formed U-profile bows provide a superior stand-off and more effective centralization than conventional bow centralizers. This enable efficient liner hanger and packer setting.
- These centralizers are highly suitable for stage and surface cementing.
- Hinge locking pins are made of high-strength steel for maximum structural strength.
- Bows can be configured for any hole diameter with a choice of various standard bow heights for optimum performance and centralization to suit the outer casing combinations.
- Its high performance characteristics are combined with an easy field assembly.

#### **Options**

- AZM Oilfield's non-welded hinged positive bow centralizers are available in sizes 4 ½" to 30"
- Special sizes or combination can be made available on request

- Hinged Stop Collar
- · Hinged Stop Collar with Spiral Nails
- Stop Collar with Set Screws



				A	ZM N	on-\	Weld Ri	gid Ce	entro	alize	r (AZI	M-N/	VR)							
		Bow Type/ Maximum Bow OD																		
CASING SIZE	WSR	-1	wsi	R-2	WSR	-3	WSR	-4	ws	R-5	WSF	t-6	ws	R-7	w	SR-8	ws	R-9	wsi	R-10
in.	in	mm	in	mm	in	mm	in	mm	In	mm	in	mm	in	mm	in	mm	in	mm	in	mm
4 1/2	5.831	148.1	6.224	158.1	6.618	168.1	6.854	174.1	7.169	182.1	7.563	192.1	7.957	202.1	8.272	210.1	9.531	242.1	10.875	276.:
5	6.350	161.3	6.744	171.3	7.138	181.3	7.374	187.3	7.689	195.3	8.083	205.3	8.476	215.3	8.791	223.3	10.051	255.3	11.375	288.9
5 1/2	6.866	174.4	7.260	184.4	7.654	194.4	7.890	200.4	8.205	208.4	8.598	218.4	8.992	228.4	9.307	236.4	10.567	268.4	11.875	301.6
6 5/8	7.980	202.7	8.374	212.7	8.768	222.7	9.004	228.7	9.319	236.7	9.713	246.7	10.106	256.7	10.421	264.7	11.681	296.7	13.000	330.2
7	8.378	212.8	8.772	222.8	9.165	232.8	9.402	238.8	9.717	246.8	10.110	256.8	10.504	266.8	10.819	274.8	12.079	306.8	13.375	339.7
7 5/8	9.012	228.9	9.406	238.9	9.799	248.9	10.035	254.9	10.350	262.9	10.744	272.9	11.138	282.9	11.453	290.9	12.713	322.9	14.000	355.6
8 5/8	10.008	254.2	10.402	264.2	10.795	274.2	11.031	280.2	11.346	288.2	11.740	298.2	12.134	308.2	12.449	316.2	13.709	348.2	15.000	381.0
9 5/8	11.000	279.4	11.394	289.4	11.787	299.4	12.024	305.4	12.339	313.4	12.732	323.4	13.126	333.4	13.441	341.4	14.701	373.4	16.000	406.4
10 3/4	12.154	308.7	12.547	318.7	12.941	328.7	13.177	334.7	13.492	342.7	13.886	352.7	14.280	362.7	14.594	370.7	15.854	402.7	17.125	435.0
11 3/4	13.150	334.0	13.543	344.0	13.937	354.0	14.173	360.0	14.488	368.0	14.882	378.0	15.276	388.0	15.591	396.0	16.850	428.0	18.125	460.4
13 3/8	14.819	376.4	15.213	386.4	15.606	396.4	15.843	402.4	16.157	410.4	16.551	420.4	16.945	430.4	17.260	438.4	18.520	470.4	19.750	501.7
16	17.445	443.1	17.839	453.1	18.232	463.1	18.469	469.1	18.783	477.1	19.177	457.1	19.571	497.1	19.886	505.1	21.146	537.1	22.375	568.3
18 5/8	20.106	510.7	20.500	520.7	20.894	530.7	21.130	536.7	21.445	544.7	21.839	554.7	22.232	564.7	22.547	572.7	23.807	604.7	25.125	638.2
20	21.500	546.1	21.894	556.1	22.287	566.1	22.524	572.1	22.839	580.1	23.232	590.1	23.626	600.1	23.941	608.1	25.201	640.1	26.500	673.

## **Welded Centralizers**

#### **Performance Features**

- AZM Oilfield's welded hinged positive centralizers are designed for casing pipe in vertical, and slightly deviated wells
- High-quality steel alloy used in bows with flat bottom U-profiles of different depths permits high fluid passage between vanes.
- The bows formed in U-Profile provide a superior stand-off and more effective centralization than conventional bow centralizers. This enable efficient liner hanger and packer setting in the well.
- These centralizers are highly suitable for stage and surface cementing.
- Bows are welded with end collars for maximum structural strength.
- U profile Bows can be configured for any hole diameter with a choice of various standard bow heights for optimum performance and centralization to suit the outer casing combinations.
- It is available in slip on and hinge options

#### **Options**

- AZM Oilfield's welded hinged positive centralizers are available in sizes 4 ½" to 30"
- Special sizes or combination can be made available on request

- Hinged Stop Collar
- Hinged Stop Collar with Spiral Nails
- Stop Collar with Set Screws



	WELDED CENTRALIZERS (AZMWB)												
	BOW TYPE / MAXIMUM OD												
Casing Size	ws-w	/B 0	ws-w	/B 1	WS-WE	3 2	WS-WB 3		WS-WB 4		ws- w	VB 5	
in	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
4 1/2	7.250	184.2	7.750	196.8	8.500	215.9	9.250	235.0	11.500	292.1	14.500	368.3	
5	7.875	200.0	8.250	209.6	8.750	222.2	9.750	247.6	12.000	304.8	15.000	381.0	
5 1/2	8.375	212.7	8.750	222.2	9.125	231.8	10.250	260.4	12.500	317.5	15.500	393.7	
6 5/8	9.500	241.3	9.875	250.8	10.375	263.5	11.375	288.9	13.625	346.0	16.625	422.3	
7	9.875	250.8	10.250	260.4	10.750	273.1	11.750	298.4	14.000	355.6	17.000	431.8	
7 5/8	10.500	266.7	11.000	279.4	11.500	292.1	12.375	314.3	14.625	371.5	17.625	447.7	
8 5/8	11.500	292.1	12.000	304.8	12.500	317.5	13.875	352.4	15.625	396.9	18.625	473.1	
9 5/8	12.500	317.5	13.000	330.2	13.500	342.9	14.875	377.8	16.625	422.3	19.625	498.5	
10 3/4	13.625	346.1	14.125	358.8	14.625	371.5	15.875	403.2	17.750	450.8	20.875	530.2	
11 3/4	14.625	371.5	15.125	384.2	15.625	396.9	16.875	428.6	18.750	476.2	21.875	555.6	
13 3/4	16.250	412.8	16.750	425.4	17.250	438.2	18.750	476.2	20.375	517.5	23.500	596.9	
16	18.875	479.4	19.375	492.1	19.875	504.8	21.375	542.9	23.000	584.2	26.125	663.6	
18 5/8	21.500	546.1	22.000	558.8	22.500	571.5	24.000	609.6	25.625	650.9	28.750	730.2	
20	22.875	581.0	23.375	593.7	23.875	606.4	25.375	644.5	27.000	685.8	30.125	765.2	

## Non-welded Semi-rigid Bow Spring Centralizer

#### **Performance Features**

- AZM Oilfield's semi-rigid centralizers have high stand-off when compared to other bow spring centralizers, because of their higher restoring force.
- Able to withstand high lateral loads.
- The spring characteristics of its double-crested profile permit compression to facilitate movement through tight spots and dog legs.
- A high restoring force combined with a low starting force is achieved with all bow heights.
- Installation on the casing pipe is very convenient since it simply requires the placement of the two assembled halves on the pipe and the insertion of the pin in the end collar hinge.
- AZM Oilfield offers a wide range of bow heights and shapes enabling the customer to make an optimum choice matching their requirements.
- These centralizers are designed to be installed between stop collars or casing collars. AZM oilfield does not recommend installing semi-rigid centralizers over a stop collar.

#### **Options**

- Non-welded hinged semi-rigid bow spring centralizers are available in the sizes 2 1/8" to 30"
- Special sizes or combinations can be made available on request

- Stop Collar with Set Screws
- Slip-On Stop Collar with Set Screws with one side Beveled
- Slip-On Stop Collar with Set Screws with one side Beveled





## **Hinged Bow Spring Centralizer with Turbo Fins**

#### **Performance Features**

- Used in conditions where extra fluid movement and cement slurry distribution are desired.
- The turbo fins create turbulence during cementing and improve the placement of the cement slurry
- Designed for use in vertical, deviated, and horizontal wells.
- A high restoring force combined with a low starting force is achieved with all bow heights.
- AZM Oilfield's bow springs are manufactured from high-quality spring steel and heat-treated to achieve minimum starting and running forces. The heat-treated alloy provides flexibility while minimizing damage when moving downhole.
- AZM Oilfield offers a wide range of bow heights and shapes enabling the customer to make an optimum choice matching their starting and restoring force requirements.
- Hinge locking pins are made of high-strength steel for maximum structural strength.

#### **Options**

- Non-welded hinged bow spring centralizers with turbo fins are available in the sizes 2 1/8" to 30"
- · Special sizes or combinations can be made available on request

- Hinged Stop Collar
- · Hinged Stop Collar with Spiral Nails





## **Drill Pipe Centralizer**

#### **Performance Features**

- It is used in stab-in inner string cementing applications.
- Optimum centralization by heat treated bow springs and adequate standoff.
- Bow springs are manufactured from high-quality spring steel and are heat-treated to achieve minimum starting and running forces.

#### **Drill Pipe Centralizer**

- Installation on the drill pipe is very convenient since it simply requires the placement of the two assembled halves on the pipe and the insertion of the pin in the end collar hinge.
- The centralizer when unassembled makes a compact package, greatly reducing shipping cost; its assembly on site is straightforward.
- AZM Oilfield offers a wide range of bow heights enabling it to suit various casing sizes.
- These centralizers are designed to be installed on drill pipes.

#### **Options**

- Drill Pipe Centralizers are available for drill pipe sizes 3 1/2" to 6-5/8" with large sizes bows for various casing sizes.
- Special sizes or design can be made available on request.

- Hinged Set Screw Stop Collar
- Hinged Bolted Stop Collar





## **Single Piece Centralizer**

#### **Performance Features**

- Designed for high restoring force combined with zero starting force for AZM Oilfield the casing pipe in vertical, deviated and horizontal wells.
- High performance characteristics are combined with easy installation by slipping over the pipe on the rack.
- These are high quality product, developed to meet and exceed API 10D specifications for use in highly demanding downhole conditions like ERD, Highly deviated and Horizontal wells.
- Single piece centralizers are formed from single sheet of special steel resulting in no weld between bows and end collars, increasing the robustness and ability to withstand higher lateral and side loads during casing running.
- Suitable for RIH, Reciprocation and Rotational applications.
- Optimum performance during casing running.

#### **Options**

- The Single piece Bow Centralizers are available in sizes 4½" to 18 5/8".
- Any special sizes or combination can be made available on request.

#### **Recommended To Use With**

• Slip-On Stop Collar with Set Screws on One Side Beveled





## **Spiral Vane Solid Centralizer**

#### **Performance Features**

- AZM Oilfield's spiral vane solid centralizers provide high impact, shock, and corrosion resistance, which are combined with their tensile and yield strength.
- The 30° slope oft he vane reduces drag and aids the casing in achieving TD.
- Able to eliminate scraping, gouging, or digging into the formation, and consequently reduce balling between the vanes.
- Being light weight, these centralizers are helpful in reducing drag, and therefore are suitable for extended reach drilling (ERD), horizontal
- I and highly deviated wells, where high drag is expected.
- Suitable for wells where the rotating and reciprocation of casing is anticipated.
- Able to withstand high wellbore temperatures while providing 100% horizontal stand-off.
- Enable cement to be evenly distributed around the casing string.

#### **Options**

- AZM Oilfield's spiral vane solid centralizers are available in Steel Alloy, Zinc and Aluminum
- Spiral vane steel alloy solid centralizers are constructed of a single-piece of fire and corrosion resistant steel alloy
- Spiral vane zinc solid centralizers a e constructed of non-sparking zinc alloy
- Spiral vane aluminum solid centralizers are constructed of high-strength, corrosion- resistant cast aluminum alloy
- Available in sizes 2 1/8" to 13 3/8"
- Special sizes or combination can be made available on request

#### **Recommended For Use With**

• Slip-On Stop Collar with Set Screws with one side Beveled.





## **Straight Vane Solid Centralizer**

#### **Performance Features**

- AZM Oilfield's spiral vane solid centralizers provide high impact, shock, and corrosion resistance, which are combined with their t nsile and yield strength.
- Has a low friction factor.
- Able to withstand high wellbore temperatures while providing 100% horizontal stand-off.



#### **Options**

- AZM Oilfield's straight vane solid centralizers are available in Steel Alloy, Zinc, and Aluminum
- Straight vane steel alloy solid centralizers are constructed of a single-piece of fire and corrosion resistant steel alloy
- Straight vane zinc solid centralizers are constructed of non -sparking zinc alloy
- Straight vane aluminum solid centralizers are constructed of high-strength, corrosion- resistant cast aluminum alloy
- Available in sizes 2 1/8" to 13 3/8"
- · Special sizes or combination can be made available on request

#### **Recommended For Use With**

• Slip-On Stop Collar with Set Screws with one side Beveled

	Solid Alloy	Centralizer	s (AZ SST -	AZ SSP)	
Casing Size	Hole Size	Normal OD	Height (Straight Blade)	Height (Spiral Blade)	Number Of
In	in	in	in	in	Vanes
3½2	4½	4 1/4	6	6	4
4½	6 1/4	6	6	6	4
5	6 1/8	6	8	8	4
5	8½	8 1/4	8	8	4
5½	6½	6 3/8	8	8	4
5½	8½	8 1/4	8	8	4
7	8½	8 1/4	8	8	6
7 5/8	9 7/8	9 3/4	8	8	6
9 5/8	12 1/4	12	15	10	8
10 3/4	14 3/4	141/2	15	10	8
11 3/4	14 3/4	141/2	15	10	8
13 3/8	17½	17 1/4	15	10	8

## **Solid Body Low Drag Roller Centralizer**

#### **Performance Features**

- Casing, Liner and screens are being run into horizontal and extended-reach wells
- Under pressured formations may cause differential sticking

#### **Options**

- Non weld bow centralizers are available in th sizes 4 1/2" to 13 3/8"
- Any special sizes or combination can be made available on request

- Run in conjunction with high-strength stop collars
- Slip-On Stop Collar with Set Screws on One Side Beveled



## **Solid Body Low Torque Roller Centralizer**

#### **Product Features**

- Torque reduction is provided by vertical alignment of rollers on the periphery of Roller Centralizer.
- Used when high torque is anticipated.
- Smooth rotation of the casing facilitates improved cementing and movement of casing to the bottom Run in conjunction with high-strength stop collars.

#### **Performance Features**

- Used when high torque Low Drag is anticipated.
- Low torque low drag roller centralizer's enable smooth rotation and running of casing to the bottom.

#### **Options**

- Non weld bow centralizers are available in the sizes 4 1/2" to 13 3/8".
- Any special sizes or combination can be made available on request.

#### **Recommended For Use With**

• Run in conjunction with high-strength stop collars.





## **Spiral Vane Thermoplastic Centralizer**

#### **Performance Features**

- AZM spiral vane thermoplastic centralizers provide high impact resistance as well as chemical and high temperature resistance.
- The extra length of the vanes provides maximum centralization, a high stand-off, and increased annular turbulence.
- Its high performance characteristics are combined with a quick and effortless installation.

#### **Options**

- AZM thermoplastic centralizers are available with a swaged mild-steel ring both on the top and the bottom end
- Available in sizes 2 1/8" to 13 3/8
- Special sizes or combination can be made available on request



#### **Recommended For Use With**

• Slip-On Stop Collar with Set Screws with one side Beveled AZ SOSS



## **Wellbore Wipers**

#### **Performance Features**

- Wellbore Wiper is a hinged collar featuring high strength steel wire cables looped in overlapping manner to produce an uninterrupted wiping action during pipe rotation
- Wiper is highly renowned for its unique features like easy to clean, highly efficient and perfect dimensions
- AZM Oilfield Wellbore Wiper is manufactured using contemporary technology with quality tested raw material
- Under the direction of our proficient professionals, our provided wiper is manufactured using contemporary technology with quality teste raw material

- Available in sizes 4½" to 20"
- Any special sizes or combination can be made available on request



## **Cement Baskets**

#### **Performance Features**

- Cement baskets consist of heavy duty canvas liners and concentrated with high strength and flexible steel staves which are seated on the steel slip-on end collar.
- They have the capability to help in premature cement hydration. This is to check hydro-static fluid column at the point of loss zone or weak formation
- The cement baskets are designed particularly so that it can be able to adapt in a remarkable way as used in most of all types of well, to the bore hole and can hold large than the nominal size of the holes.
- These baskets are designed for installation between two stop collars. Hence, these does not meant to be reciprocated. But travels the length of the joint just to allow the pipe movement.



- Available from sizes 4½" to 30" sizes configurations.
- Slip-on type and the hinged type cement basket can be normally installed between slip-on type stop collars or stop collar or hinged camp over the casing to hold them in a place.
- These cement baskets are able to rotated and reciprocated



## **Hinged Bolted Stop Collar**

#### **Performance Features**

- This Hinged bolted Stop Collar can be latched on the casing pipe without having to be slipped on at the end of the casing pipe allowing easy installation
- The locking mechanism is at 180 degrees of the hinge.
- A single bolt is used to tighten the collar to the casing.
- On locking it can be tightened for a holding force upto 1000 % of the centralizer starting force as per API 10D
- This design does not make any marks or indentations on the casing

- Available from sizes 95/8" 30" sizes configurations.
- · Any special sizes or combination can available on request





## Slip-On Stop Collars with Set Screws beveled

#### **Performance Features**

- Heavy duty single piece seamless construction with single side beveled. The bevel provides a good lead-in edge for a rigid centralizer .
- It is used when holding force requirement is very high.
- Recommended for small hole operations and predominantly used on both sides of rigid or semirigid centralizers .
- It is easy to install.

- Available in sizes 2 / " 30" 4.
- Any special sizes or combination can be made available on request.



	COLLAR TYPE / MAXIMUM O.D												
Size	Hinged I	Bolted	Hinged :	Spiral		d Set. ew		With Set crew					
	AZ- I	НВ	AZ-HS		AZ-	HSS	ws-soss						
in	in	mm	in	mm	in	mm	in	mm					
31/2	-	-	-	-	-	-	4.685	119					
41/2	5.748	146	5.827	148	5.748	146	5.630	143					
5	6.260	159	6.378	162	6.260	159	6.142	156					
5½	6.772	172	6.850	174	6.772	172	6.654	169					
6 5/8	7.913	201	7.992	203	7.913	201	7.756	197					
7	8.307	211	8.386	213	8.307	211	8.150	207					
7 5/8	8.937	227	9.016	229	8.937	227	8.819	224					
8 5/8	9.921	252	10.000	254	9.921	252	9.803	249					

	COLLAR TYPE/ MAXIMUM O.D												
Size	Hinged	Bolted	Hinged Sp	iral	Hinge Scr	d Set. ew	With	Slip On With Set Screw					
	AZ- HB		AZ-HS	AZ-I	HSS	AZ-SOSS							
in	in	mm	in	mm	in	mm	in	mm					
9 5/8	10.906	277	11.024	280	10.906	277	10.7 87	274					
10 3/4	12.087	307	12.165	309	12.087	307	11.92 9	303					
11 3/4	13.071	332	13.189	335	13.071	332	12.9 53	329					
13 3/8	14.724	374	14.803	376	14.724	374	14.6 06	371					
16	17.362	441	17.480	444	17.362	441	17.24 4	438					
18 5/8	20.039	509	20.118	511	20.039	509	19.8 82	505					
20	21.417	544	21.496	546	21.417	544	21.29 9	541					



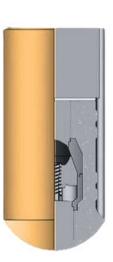
## **Single Valve Float Shoe and Collar**

#### **Performance Features**

- Free-floating ball abrades
- Valve parts will not damage PDC bits
- Fast drill-out & No springs
- Operator-controlled buoyancy-regulated by filling casing at surface
- · Cost effective

- Available in all 3 1/2" to 30" sizes and any special size/configurations per requirement.
- Available with cement nose, aluminum nose or bladed nose.
- API standard threads are cut in-house as are numerous selected premium threads up to certain sizes. Other premium and custom the adding can be supplied and cut through our extensive vendor base.







## **Double Valve Cement Float Shoe and Collar**

#### **Performance Features**

- · Fast Drill-Out.
- Valve parts will not damage PDC Bits.
- Operator controlled buoyancy regulated by filling casing at surface.
- Double Valve acts an extra back pressure valve.
- · Cost Effective

- Available from sizes 4-1/2" till 36" + any special sizes configurations.
- Available with shoes with cement nose, aluminum nose or bladed nose.
- API standard threads are cut in-house as are n merous selected premium threads up to certain sizes. Other premium andcustom threading can be supplied and cut through our extensive vendor base







## **Duplex Cement Float Shoe and Collar**

#### **Performance Features**

- Float collar & shoe is supplied with plunger valve in most of the application.
- Material used for float equipment is seamless casing grade steel.
- Float equipment's are PDC drillable
- Reduces rig time circulating, pumping, and drill-out time is minimized.
- Protects casing cementing pressures are confined to the drill pipes in a squeeze job.

- Available from sizes 95/8" 30"
- Duplex cement Float Shoes & Collars are also available with Double Valve
- API standard threads are cut in-house as are numerous selected premium threads up to certain sizes. Other premium and custom threading ca be supplied and cut through our extensive vendor base









## **Non-Rotational Cement Float Collar**

#### **Performance Features**

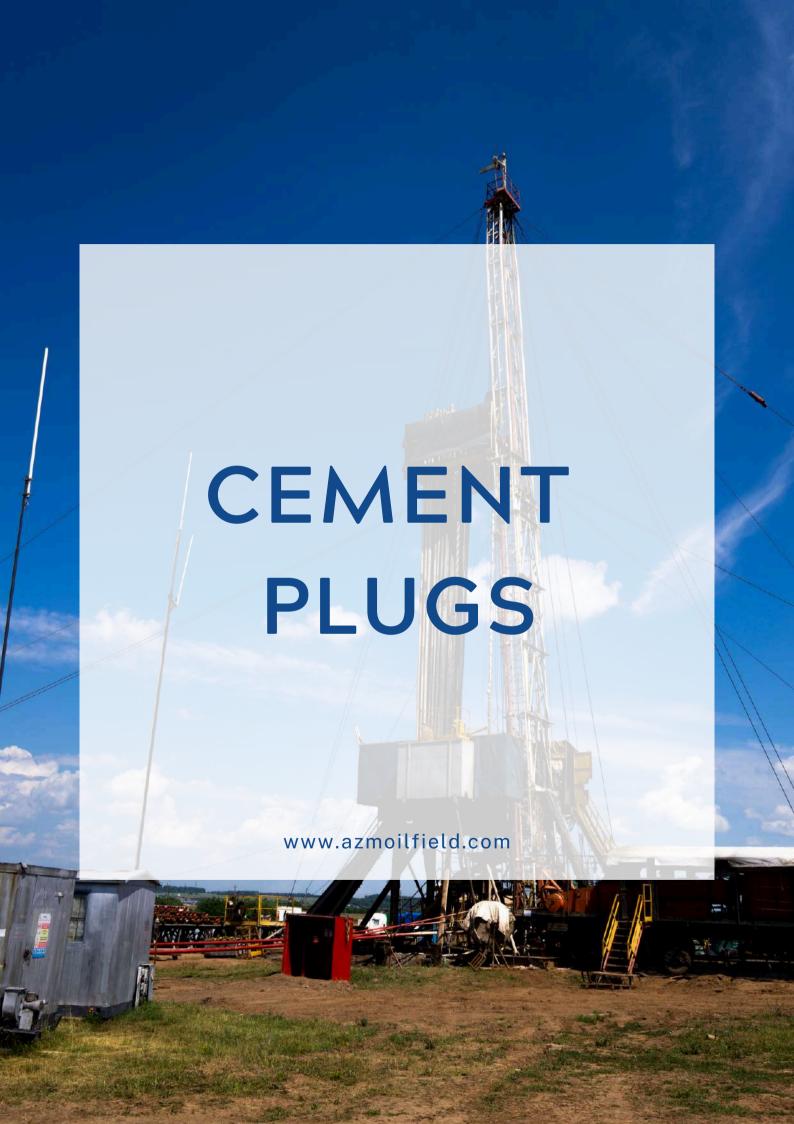
- Operator-controlled buoyancy-regulated by filling casing at surface.
- Manufactured to withstand various differential pressures.
- Float equipment's are PDC drillable
- · Cost effective

- Available in sizes 95/8" 30"
- Non-Rotational Float Collars are also available with double valve
- API standard threads are cut in-house. Other premium and custom threading can be supplied and cut through our extensive vendor base.









## **Conventional Cement Plugs**

#### **Performance Features**

- The Top & Bottom Plug are constructed of material selected to reduce the drill out time, thereby resulting in cost saving.
- The Top Plug is used as a follow plug to displace the cement and land on the upper end of the Bottom Plug.

#### **Conventional Cement Plugs**

- The body consists of ebonite insert molded with elastomer. This allows the drill bit to fracture the ebonite rather than tear the rubber and aluminum as with a conventional Plug thus reducing the drill out time significantly.
- No metal parts are used therefore the Plugs are PDC drillable.

- The Conventional Cementing plugs are available in sizes 4 1/2" to 20".
- Options available in Conventional Top Cementing Plug & Conventional Bottom Cementing Plug
  as per requirement. Plug is also available and can be drilled out with PDC and conventional drill
  bit
- AZM Oilfield Conventional Cementing plugs are available in NR, SBR, NBR and HNBR grades.

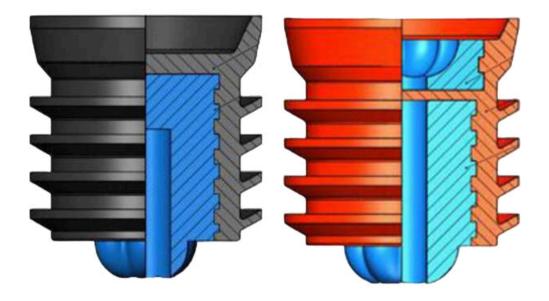




## **Non-Rotational Plug**

#### **Performance Features**

- The Non-Rotating Top & Bottom Cementing Plugs are designed to decrease drill out time
- No metal parts are used therefore the Plugs are PDC drillable



- The Non Rotating Cementing plugs are available insizes 4 1/2" to 20"
- Options available in Non-Rotational Top Cementing Plug & Non-Rotational Bottom Cementing Plug as per requirement
- AZM Oilfield Non Rotating Cementing plugs are available in NR,SBR,NBR and HNBR grades.

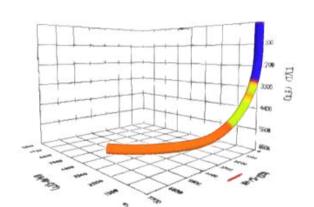


## **Centralizer Placement Software**

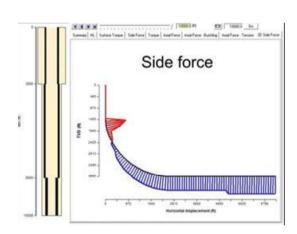
**AZM Oilfield Software** calculates the centralizer placement, casing standoff and torque and drag. It analyses and recommends the minimum number of centralizers to define string placement, considering standoff criteria, torque or drag reduction requirements or optimum positioning due to high load areas. The simulations can also accommodate casing floatation and air section length optimization as well as Casing deflection and centralizer compression

Casing centralization is one of the key elements to e sure the quality of a cementing job. It does so by preventing mud channeling and poor zonal isolation. While centralizers are used extensively, well problems continue to arise due to poor cementing jobs. The challenge that both operators and service companies face is to choose the right type of centralizers and place the correct amount of them in the optimum position on the casing to achieve a good standoff profile.

**AZM** Oilfield software optimizes the centralizer placement, predicts casing standoff and torque and drag for ERD or deviated wellbores. It determines the number and placement of centralizers using one of the four modes: "specify spacing", "specify location", "specify standoff" and "optimum "for bow-spring, rigid, semi-rigid, and solid centralizers.



Parameter Visualization



Analysis



# **Casing Table**

Casing Outside Nominal Wall Inside Outside Country Casing Outside Nominal Diameter Weight Thickness Diameter Diameter Weight Ti	Wall				pling
	nickness	Inside	Diameter		ıtside ımeter
in mm in mm in mm in mm in mm in mm in	mm	in	mm	in	mm
4 1/2 114.3 9.5 14.14 0.205 5.2 4.09 103.88 5 127 9 5/8 244.48 29.3 43.6 0.281 4 1/2 114.3 10.5 15.63 0.224 5.69 4.052 102.92 5 127 9 5/8 244.48 32.3 48.07 0.312	7.14	9.063	230.2	10.625	269.88 269.88
41/2 114.3 11.6 17.26 0.25 6.35 4 101.6 5 127 9.5/8 244.48 36 53.57 0.352	8.94	8.921	226.6	10.625	269.88
41/2 114.3 13.5 20.09 0.29 7.37 3.92 99.56 5 127 95/8 244.48 40 59.53 0.395	10.03	8.835	224.42	10.625	269.88
41/2 114.3 15.1 22.47 0.337 8.56 3.826 97.18 5 127 95/8 244.48 43.5 64.74 0.435	11.05	8.755	222.38	10.625	269.88
5 127 11.5 17.11 0.22 5.59 4.56 115.82 5.563 141.3 9 5/8 244.48 47 69.94 0.472 5 127 13 19.35 0.253 6.43 4.494 114.14 5.563 141.3 9 5/8 244.48 53.5 79.62 0.545	11.99	8.681 8.535	220.5 216.8	10.625 10.625	269.88 269.88
5 127 15 22.32 0.296 7.52 4.408 111.96 5.563 141.3 9.5/8 244.48 58.4 86.91 0.595	15.11	8.435	214.26	10.625	269.88
5 127 18 26.79 0.362 9.19 4.276 108.62 5.563 141.3 9.5/8 244.48 59.4 88.4 0.609	15.47	8.407	213.54	10.625	269.88
5 127 21.4 31.85 0.437 11.1 4.126 104.8 5.563 141.3 95/8 244.48 64.9 96.58 0.672	17.07	8.281	210.34	10.625	269.88
5 127 23.2 34.53 0.478 12.14 4.044 102.72 5.563 141.3 95/8 244.48 70.3 104.62 0.734 5 127 24.1 35.86 0.5 12.7 4 101.6 5.563 141.3 95/8 244.48 75.6 112.51 0.797	18.64	8.157 8.031	207.2	10.625	269.88 269.88
5 1/2 139.7 14 20.83 0.224 5.69 5.052 127.32 6.05 153.67 10 3/4 273.05 32.75 48.74 0.279	7.09	10.192	258.87	11.75	298.45
51/2 139.7 15.5 23.07 0.275 6.99 4.95 125.72 6.05 153.67 10 3/4 273.05 40.5 60.27 0.35	8.89	10.05	255.27	11.75	298.45
51/2 139.7 17 25.3 0.304 7.72 4.892 124.26 6.05 153.67 10 3/4 273.05 45.5 67.71 0.4	10.16	9.95	252.73	11.75	298.45
5 1/2 139.7 20 29.76 0.361 9.17 4.778 121.26 6.05 153.67 10 3/4 273.05 51 75.9 0.45 51/2 139.7 23 34.23 0.415 10.54 4.67 118.62 6.05 153.67 10 3/4 273.05 55.5 82.59 0.495	11.43	9.98	250.19 247.91	11.75	298.45 298.45
51/2         139.7         26.8         39.88         0.5         12.7         4.5         114.3         6.05         153.67         10 3/4         273.05         60.7         90.33         0.545	13.84	9.66	245.37	11.75	298.45
51/2 139.7 29.7 44.2 0.562 14.27 4.376 111.16 6.05 153.67 10.3/4 273.05 65.7 97.77 0.595	15.11	9.56	242.83	11.75	298.45
51/2 139.7 32.6 48.51 0.625 15.88 4.25 107.94 6.05 153.67 10 3/4 273.05 73.2 108.93 0.672	17.07	9.406	238.91	11.75	298.45
5 1/2 139.7 35.3 52.53 0.687 17.45 4.126 104.8 6.05 153.67 10 3/4 273.05 79.2 117.86 0.734 51/2 139.7 38 56.55 0.75 19.05 4 101.6 6.05 153.67 10 3/4 273.05 85.3 126.94 0.797	18.64	9.282 9.156	235.77	11.75	298.45 298.45
51/2     139.7     38     50.55     0.75     19.05     4     101.6     0.05     153.67     10 3/4     273.05     85.3     126.94     0.787       51/2     139.7     40.5     60.27     0.812     20.62     3.876     98.46     6.05     153.67     11 3/4     298.45     38     56.55     0.3	7.62	11.15	283.21	12.75	323.85
5 1/2 139.7 43.1 64.14 0.875 22.23 3.75 95.24 6.05 153.67 11 3/4 298.45 42 62.5 0.333	8.46	11.084	281.53	12.75	323.85
5 3/4 146.05 18 26.79 0.303 7.7 5.144 130.65 6.535 166 11 3/4 298.45 47 62.94 0.375	9.53	11	279.39	12.75	323.85
53/4 146.05 19.7 29.32 0.335 8.5 5.081 129.05 6.535 166 113/4 298.45 54 80.32 0.435	11.05	10.88	276.35	12.75	323.85
5 3/4 146.05 21.9 32.59 0.374 9.5 5.002 127.05 6.535 166 11 3/4 298.45 60 89.29 0.489 5 3/4 146.05 24.4 36.31 0.421 10.7 4.907 124.65 6.535 166 11 3/4 298.45 65 96.73 0.534	12.42	10.772	273.61 271.33	12.75	323.85 323.85
6 5/8 168.28 17 25.3 0.245 6.22 6.135 155.84 7.39 187.71 11 3/4 298.45 71 105.66 0.582	14.78	10.586	298.89	12.75	323.85
6 5/8 168.28 20 29.76 0.288 7.32 6.049 153.64 7.39 187.71 12 3/4 323.85 45.2 67.27 0.335	8.5	12.081	306.85	13.819	351
6 5/8 168.28 24 35.72 0.352 8.94 5.921 150.4 7.39 187.71 12 3/4 323.85 50.4 75 0.374	9.5	12.002	304.85	13.819	351
6 5/8 168.28 28 41.67 0.417 10.59 5.791 147.1 7.39 187.71 12 3/4 323.85 58.6 87.21 0.437 6 5/8 168.28 32 47.62 0.475 12.07 5.675 144.14 7.39 187.71 12 3/4 323.85 65.2 97.03 0.488	11.1	11.876	301.65 299.05	13.819	351 351
7 177.8 17 25.3 0.231 5.87 6.538 166.06 7.656 194.46 12 3/4 323.85 77.2 111.89 0.583	14.8	11.585	294.25	13.819	351
7 177.8 20 29.76 0.272 6.91 6.456 163.98 7.656 194.46 13 3/8 339.73 48.2 71.43 0.33	8.38	12.715	322.97	14.375	365.13
7 177.8 23 34.23 0.317 8.05 6.366 161.7 7.656 194.46 13 3/8 339.73 54.5 81.1 0.38	9.65	12.615	320.43	14.375	365.13
7 177.8 26 38.69 0.362 9.19 6.276 159.42 7.656 194.46 133/8 339.73 61 90.78 0.43 7 177.8 29 43.16 0.408 10.36 6.184 157.08 7.656 194.46 133/8 339.73 68 101.2 0.48	10.92	12.515	317.89 315.35	14.375 14.375	365.13 365.13
7 177.8 32 47.62 0.453 11.51 6.094 154.78 7.656 194.46 133/8 339.73 72 107.15 0.514	13.06	12.347	313.61	14.375	365.13
7 177.8 35 52.09 0.498 12.65 6.004 152.5 7.656 194.46 16 406.4 55 81.85 0.313	7.95	15.374	390.5	17	431.8
7 177.8 38 56.55 0.504 13.72 5.92 150.36 7.656 194.46 16 406.4 65 96.73 0.375	9.53	15.25	387.34	17	431.8
7 177.8 42.7 63.54 0.626 15.9 5.748 146 7.656 194.46 16 406.4 75 111.61 0.438 7 177.8 46.6 69.35 0.687 17.45 5.626 142.9 7.656 194.46 16 406.4 84 125.01 0.495	11.13	15.124	384.147 381.26	17	431.8 431.8
7 177.8 50.1 74.56 0.75 19.05 5.5 139.7 7.656 194.46 16 406.4 109 165.21 0.656	16.66	14.688	373.08	17	431.8
7 177.8 53.6 79.77 0.812 20.62 5.376 136.56 7.656 194.46 163/4 425.45 70.1 104.32 0.394	10	15.963	405345	17.756	451
7 177.8 57.1 84.97 0.875 22.23 5.25 133.34 7.656 194.46 163/4 425.45 76.9 114.44 0.433	11	15.884	403.45	17.756	451
7 5/8 193.68 20 29.76 0.25 6.35 7.125 180.98 8.5 215.9 16 3/4 425.45 83.7 124.56 0.472 7 5/8 193.68 24 35.72 0.3 7.62 7.025 178.44 8.5 215.9 18 5/8 473.08 87.5 130.21 0.435	12	15.805 17.755	401.45 450.98	17.756	451 508
75/8 193.68 26.4 39.29 0.328 8.33 6.969 177.02 8.5 215.9 20 508 94 139.89 0.438	11.13	19.124	485.74	21	533.4
75/8 193.68 29.7 44.2 0.375 9.53 6.875 174.62 8.5 215.9 20 508 106.5 158.49 0.5	12.7	19	482.6	21	533.4
75/8 193.68 33.7 50.15 0.43 10.92 6.765 171.84 8.5 215.9 20 508 133 197.93 0.635	16.13	18.73	475.74	21	533.4
7 5/8 193.68 39 58.04 0.5 12.7 6.625 168.25 8.5 215.9 24 609.6 125.5 186.76 0.5 7 5/8 193.68 42.8 63.69 0.562 14.27 6.501 165.14 8.5 215.9 24 609.6 158.5 235.87 0.635	12.7	23 22.73	584.2 577.34	N/A N/A	N/A N/A
7-5/8 193.68 45.3 67.41 0.595 15.11 6.435 163.46 8.5 215.9 24 609.6 176.4 262.51 0.709	18.01	22.582	573.58	N/A	N/A
75/8 193.68 47.1 70.09 0.625 15.88 6.375 161.92 8.5 215.9 24 609.6 201.1 299.27 0.812	20.62	22.376	568.36	N/A	N/A
75/8 193.68 51.2 76.19 0.687 17.47 6.251 158.78 8.5 215.9 26 660.4 202.3 301.06 0.75	19.05	24.5	622.3	N/A	N/A
75/8 193.68 55.3 82.3 0.75 19.05 6.125 155.58 8.5 215.9 26 660.4 267 397.34 0.812	20.62	24.376	619.16	N/A	N/A
7 3/8 196.85 46.1 68.6 0.595 15.11 6.56 166.63 9.625 9.625 26 660.4 182.7 271.89 0.866 8 5/8 219.08 24 35.72 0.264 6.71 8.097 205.66 9.625 9.625 26 660.4 267 397.34 1	25.4	24.268	616.4	N/A N/A	N/A N/A
8 5/8         219.08         28         41.67         0.304         7.72         8.017         203.64         9.625         9.625         28         711.2         182.7         271.89         0.625	15.88	26.75	679.44	N/A	N/A
85/8 219.08 32 47.62 0.352 8.94 7.921 201.2 9.625 9.625 28 711.2 218.3 324.87 0.75	19.05	26.5	673.1	N/A	N/A
8 5/8 219.08 36 53.57 0.4 10.16 7.925 198.76 9.625 9.625 30 762 196.1 291.83 0.625	15.88	28.75	730.24	N/A	N/A
8 5/8 219.08 40 59.53 0.45 11.43 7.725 196.22 9.625 9.625 30 762 234.3 348.68 0.75 8 5/8 219.08 44 65.48 0.5 12.7 7.625 193.68 9.625 9.625 30 762 309.7 460.88 1	19.05 25.4	28.5	723.9 711.2	N/A N/A	N/A N/A
8 5/8 219.08 49 72.92 0.557 14.15 7.511 190.78 9.625 9.625 30 762 0 0 0	0	30	762	N/A	N/A

## **Our Certificates**

#### AZM is An ISO 9001 CERTIFIED ORGANISATION

ISO 9001:2015





ISO 45001:2018





## **OFFICE**



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