Petromac

2024
CATALOGUE

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About us

At Petromac we design and manufacture a broad range of bespoke devices for the wireline logging industry. Petromac devices provide a quantum improvement in risk control for both the wireline logging companies and the operators we serve to deliver significant cost and time saving benefits.

“Petromac started with the sole aim of improving wireline logging efficiency and enhancing log data quality for Operators, particularly in challenging wellbore conditions. Our dedicated regional managers have a wealth of wireline logging experience, and continually strive to push the boundaries through innovation and expertise.”

- Stephen McCormick

Operational Efficiency

Petromac’s Wireline Express conveyance system dramatically improves the operational efficiency of wireline operations. This is realized by enabling conventional wireline operations in challenging wellbores usually logged by alternative conveyance methods such as pipe-conveyed logging, tractor operations and LWD.
Using ultra-low friction wheels that reduce the whole tool drag to enable gravity descents to 80deg deviations and reduce differential sticking risk to negligible levels, customers around the world have drastically improved operational efficiency while enhancing safety and log quality.

Sticking Prevention

The Wireline Express conveyance system eliminates differential sticking by carrying the logging tools on wheeled carriages. This sticking risk reduction is achieved because of the following:

- Significant reduction of the total area of contact of the downhole assembly with the borehole wall (~ 99% reduction of contact area compared to a typical sampling string)
- Wheels are able to “roll out of a differential sticking scenario as rolling friction is much less than sliding friction.
- Fluid sampling from the high side of the wellbore allows the weight of the tool to “peel” the packer off the borehole wall

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Well Access

Ledges and Washouts are a significant problem that inherently plagued the wireline operations for decades. Petromac offers a range of holefinders to fit various logging tools. By using the orientation principles, the holefinder is positioned in the centre of the wellbore to guide the tool out of a washout without losing momentum.
This ensures that ledges and washouts are seamlessly navigated with a much higher success rate than traditional holefinders.
Petromac's industry leading bearing technology reduces tool drag to less than 10%, as opposed to 30%+ with traditional methods. With such low drag, multiple wireline jobs have been successfully performed in deviations over 80° without the need of pipe conveyance or a tractor.

Sensor Orientation

A feature unique to the Wireline Express conveyance system, the orientation of the logging tool sensors facilitates many techniques to improve data quality:

- Low side orientation for pad tools
- Fluid sampling from the high side of the wellbore
- X-Y Density in deviated wellbores
- Orients side-wall coring
- Valid Density down-log

Centralization

Petromac has developed industry-leading logging tool centralisation equipment. Since the inception of wireline logging operations, there was no step change in the development of the logging tool centralisers. The conventional centralisers increase drag whilst doing a poor job of centralizing in different scenarios. This had a negative effect on the data quality of the logs (stick-slip) and/or how far the tools could go down in deviated wells. The Petromac centralisers have been developed with two main objectives: to achieve perfect centralization and minimizing the drag associated with achieving perfect centralization to give the operators the perfect log.

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Petromac's Equipment catalogue is continuously being updated with innovative new products and solutions. The catalogue comprises two distinct Product Lines:

Wireline Express™ consists of a diverse range of Taxis and Guides for wireline logging tools which provide conveyance, orientation and well access solutions to deliver improved operational efficiency and data quality.

WIRELINE EXPRESS

FOCUS PRECISION CENTRALISERS

This new product line has evolved from Wireline Express™. A ground up analysis of centraliser mechanics and logging applications has led to multiple innovations in the Focus™ product range. Focus™ devices achieve near perfect centralisation and enable gravity descent, regardless of deviation, resulting in improved operational efficiency and data quality.

Petromac devices are protected by one or more patent in the US and elsewhere:
https://www.petromac.co.nz/patents/

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CONTENTS

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WIRELINE EXPRESS TOOL TAXI SYSTEM

Type A - Tungsten Carbide Bearing

DESCRIPTION:

Slip-over tool taxis with tungsten carbide bush bearings, designed to orient & reduce the drag coefficient of a logging tool string.

Taxis lock securely onto the tool housings or into c-spanner recess holes and fit both 3 5/8” and 3 3/8” logging tool housings.

There are two different models of Tool Taxi which provide either 0.5” or 1.5” standoff in an 8.5” wellbore.

APPLICATION:

- Gravity logging up to 70 degrees well deviation using a slip-over wheel design
- Orient logging tool sensors, cores, pressure measurements and samples without the need for standoffs, bow springs, tool turners etc.
- Stick-slip and cable tension reduction
- Eliminate risk of tool differential sticking by offsetting tools from the wellbore wall.
- Robust design. Very low maintenance requirement.

Type B - Ball Bearing

DESCRIPTION:

Slip-over tool taxis designed to orient & reduce the drag coefficient of a logging tool string.

Taxi wheels run on ball bearings in a sealed, pressure compensated, lubricant bath providing the lowest friction in class.

Taxis lock securely onto the housings or into c-spanner recess holes and fit a range of logging tool housing OD.

There are two different models of Tool Taxi which provide either 0.5” or 1.5” standoff in an 8.5” wellbore.

APPLICATION:

- Gravity logging up to 80 degrees well deviation using a slip-over wheel design
- Orient logging tool sensors, cores, and pressure measurements and samples without the need for standoffs, bow springs, tool turners etc.
- Stick-slip and cable tension reduction
- Eliminate risk of tool differential sticking by offsetting tools from the borehole
- Robust design. Very low maintenance requirement.

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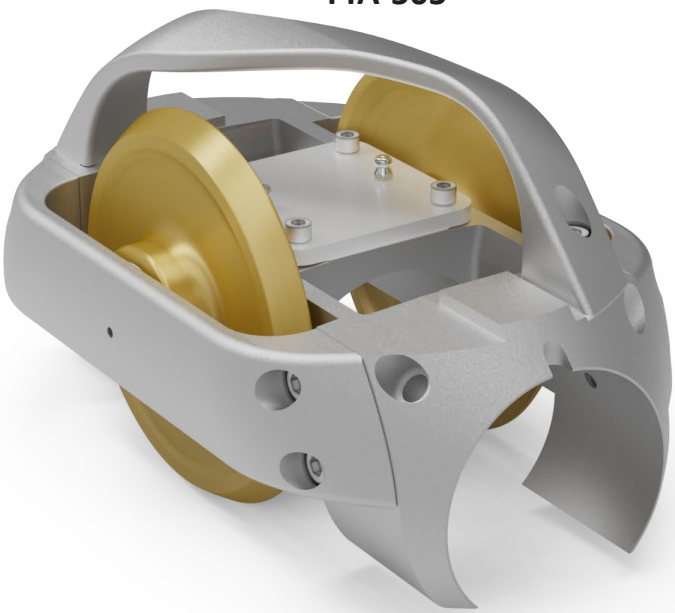
WIRELINE EXPRESS

TAXIS

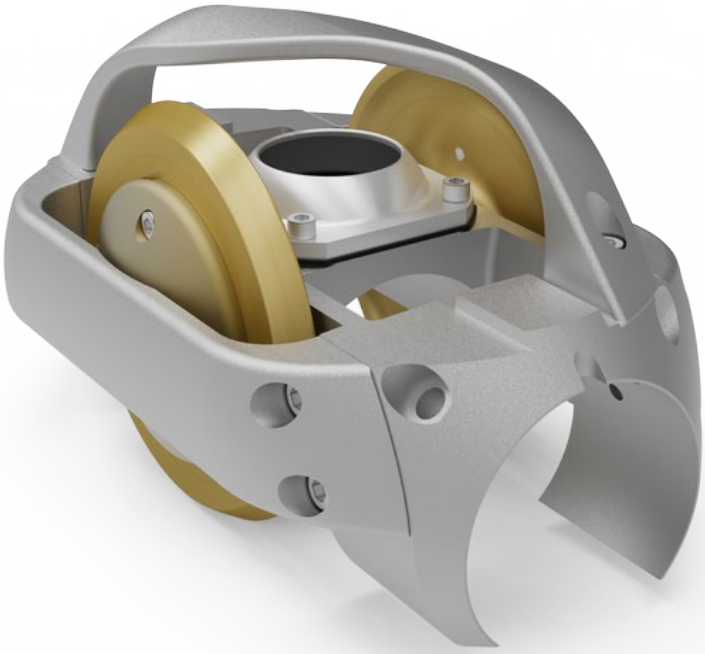
ORIENTING TAXIS

Orienting Taxis TTA-505 and TTB-505

TTA-505



TTB-505



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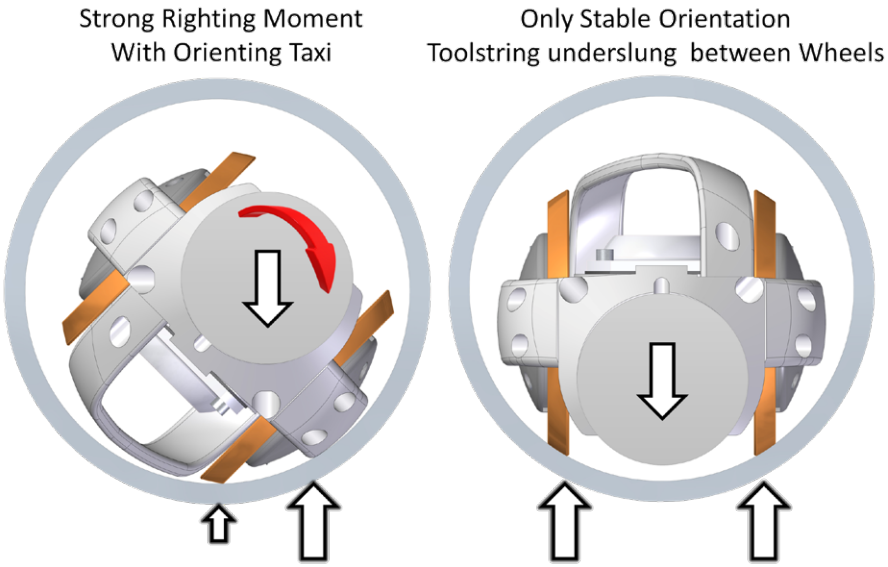
WIRELINE EXPRESS

TECHNICAL SPECIFICATIONS		
Model	TTA-505	TTB-505
Weight	26 lbs	
Length	11.4”	
Volume	0.05ft3	
Min. Hole Size	8”	
Max. Hole size	17.5”	
Drag Coefficient, dynamic	5%	2%
Drag Coefficient, Static	12%	4%
Temperature rating	350°F	
Pressure rating	30,000 psi	
Taxi OD	7-¼”	
Wheel diameter	6”	
Taxi Bore[1]	3-⅝”	
Standoff in 8.5” Wellbore[2]	0.5”	

1 Fits a 3-5/8” logging tool and a 3-3/8” tool housing via a reducing sleeve. Other version , TTA-705 is available with a 3.7” bore.
2 Set Standoff parameters to appropriate offset, see next page.

MATERIALS		
Body	17-4 PH SS	
Bearings	Tungsten Carbide composite[1]	Custom ball bearing
Lubrication	Passive	Active Diaphragm: Nitrile < 230°F Viton < 480°F
Grease	Lubriplate 930AA	
Fastening	304 Stainless Steel Cap Screws 1/4”, 3/16” hex UNC thread	
Attachment	Alloy Steel grub Screw , 1/4” hex, UNC Thread, Dog end type	
SWL for fishing	50,000 lbs	
SWL Shear Set Screws	8,500 lbs	

1 Tungsten carbide must not be subjected to shock loadings, Do not hit with a hammer or use gas torch.



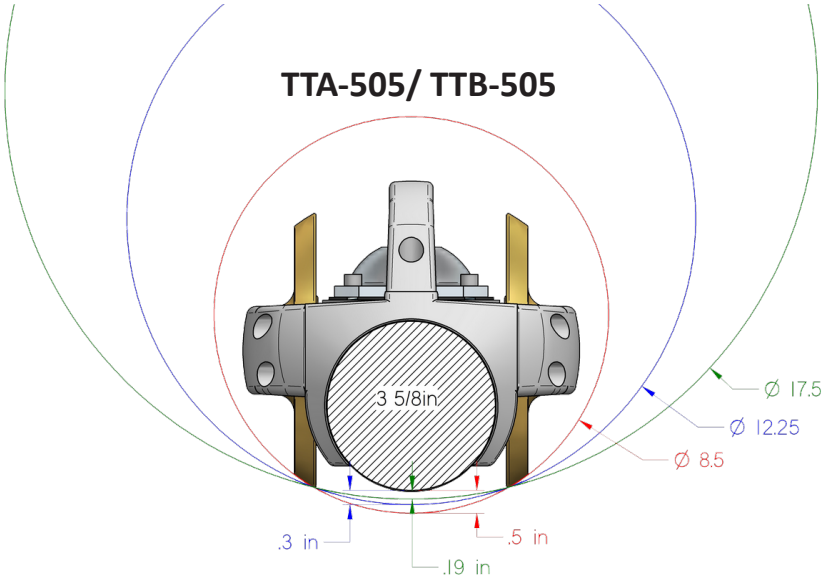


Figure 1: Standoff on a 3-5/8"Tool

STANDOFF TABLE		
Bit Size	**Tool Housing OD:**	
	3-3/8"	**3-5/8"**
8 1/2"	0.6"	0.5"
9 7/8"	0.5"	0.4"
12 1/4"	0.4"	0.3"
17 1/2"	0.3"	0.2"

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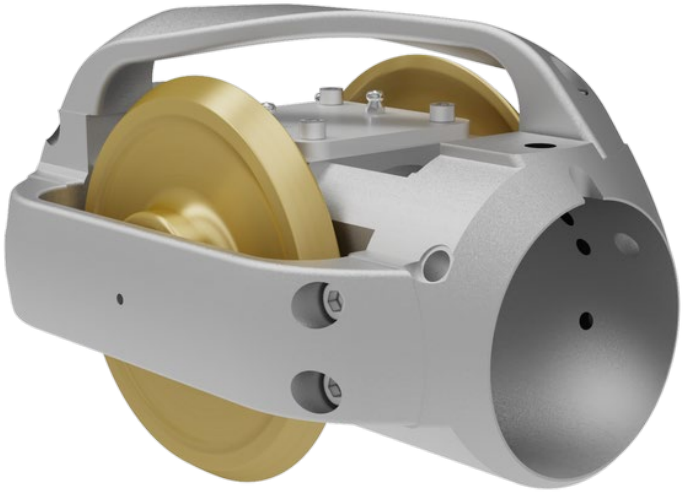
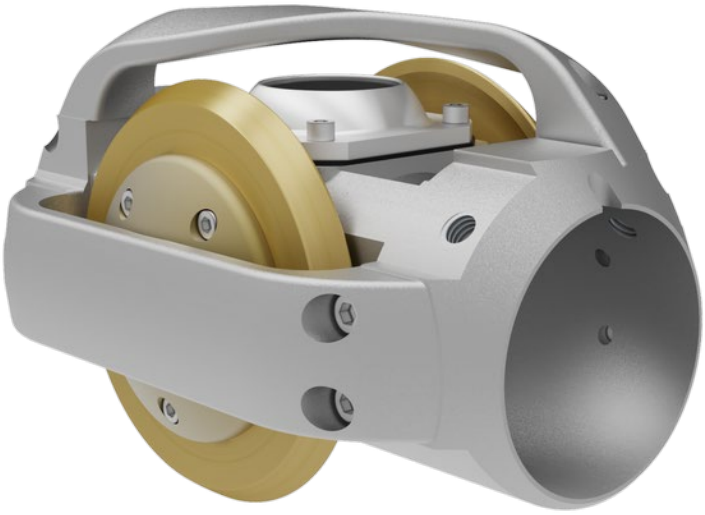
CONVEYANCE TAXI

Conveyance Taxis TTA-515 and TTB-515

TTA-515



TTB-515



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WIRELINE EXPRESS

TECHNICAL SPECIFICATIONS		
Model	**TTA-515**	**TTB-515**
Weight	26 lbs	27 lbs
Length	10.4”	
Volume	0.05ft3	
Min. Hole Size	8”	
Max. Hole size	24”	
Drag Coefficient, dynamic	5%	2%
Drag Coefficient, Static	12%	4%
Temperature rating	350°F	
Pressure rating	30,000 psi	
Taxi OD	7-¼”	
Wheel diameter	6”	
Taxi Bore[1]	3-⅝”	
Standoff in 8.5” Wellbore[2]	1.5”	

1 Fits a 3-5/8” logging tool and a 3-3/8” tool housing via a reducing sleeve. Other version , TTA-715 is available with a 3.7” bore.
2 Set Standoff parameters to appropriate offset, see next page.

MATERIALS		
Body	17-4 PH SS	
Bearings	Tungsten Carbide composite[1]	Custom ball bearing
Lubrication	Passive	Active Diaphragm: Nitrile < 230°F Viton < 480°F
Grease	Lubriplate 930AA	
Fastening	304 Stainless Steel Cap Screws 1/4”, 3/16” hex UNC thread	
Attachment	Alloy Steel grub Screw , 1/4” hex, UNC Thread, Dog end type	
SWL for fishing	50,000 lbs	
SWL Shear Set Screws	8,500 lbs	

1 Tungsten carbide must not be subjected to shock loadings, Do not hit with a hammer or use gas torch

TTA-515/ TTB-515

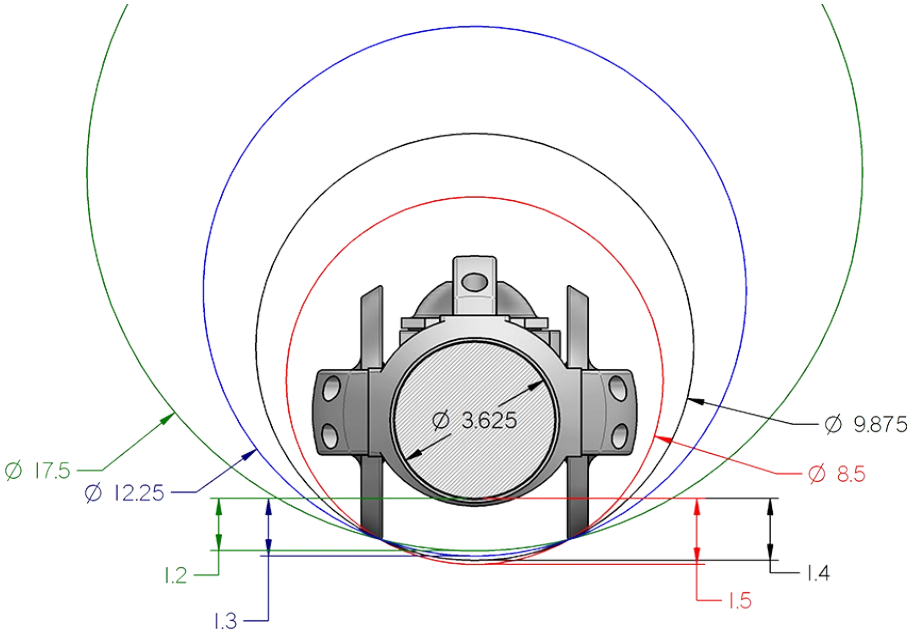
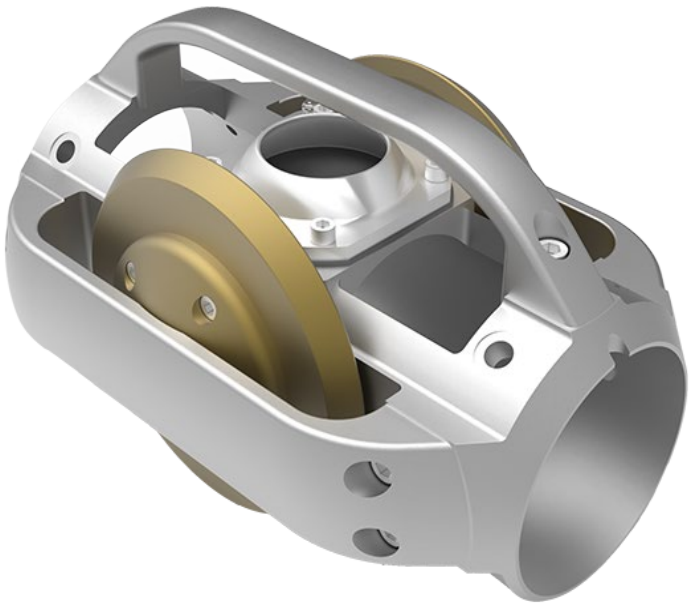


Figure 2: TTA/TTB - 515 standoff on a 3-5/8"Tool

STANDOFF TABLE		
Bit Size	**Tool Housing OD:**	
	3-3/8"	**3-5/8"**
8 1/2"	1.6"	1.5"
9 7/8"	1.5"	1.4"
12 1/4"	1.4"	1.3"
17 1/2"	1.3"	1.2"

Conveyance TTB-715



TTB-X715

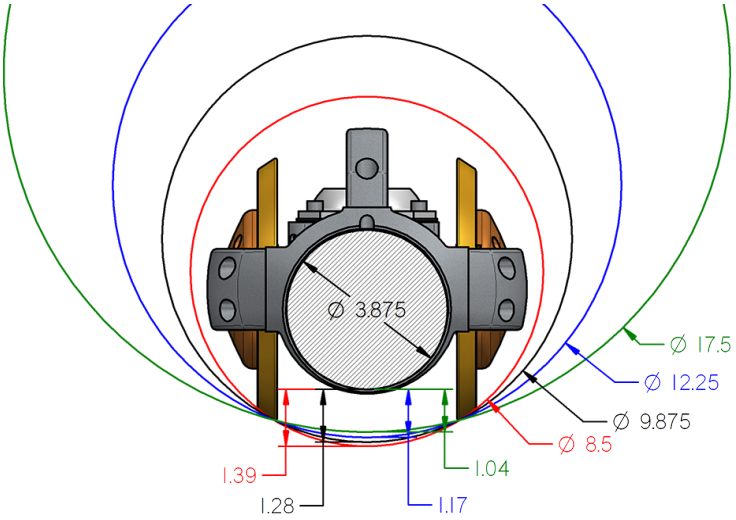


Figure 3: TTB - 715 standoff

STANDOFF TABLE	
Bit Size	**Tool Housing OD:**
8 1/2”	1.4”
9 7/8”	1.3”
12 1/4”	1.2”
17 1/2”	1.0”

TECHNICAL SPECIFICATIONS	
Model	TTB-715
Weight	28 lbs
Length	11.6”
Volume	0.06ft3
Min. Hole Size	8.5”
Max. Hole size	24”
Drag Coefficient, dynamic	2%
Drag Coefficient, Static	4%
Temperature rating	350°F
Pressure rating	30,000 psi
Taxi OD	7.7”
Taxi Bore	3-⅞”
Standoff in 8.5” Wellbore[1]	1.4”

1 Set Standoff parameters to appropriate offset, see previous page.

MATERIALS	
Body	17-4 PH SS, Heat treated H1150
Bearings	Custom ball bearing
Lubrication	Active Diaphragm, Nitrile < 230°F Active Diaphragm, Viton < 480°F
Grease	Lubriplate 930AA
Fastening	304 Stainless Steel Cap Screws 1/4”, 3/16” hex UNC thread
Attachment	Alloy Steel grub Screw , 1/4” hex, UNC Thread, Dog end type
SWL for fishing	50,000 lbs
SWL Shear Set Screws	8,500 lbs

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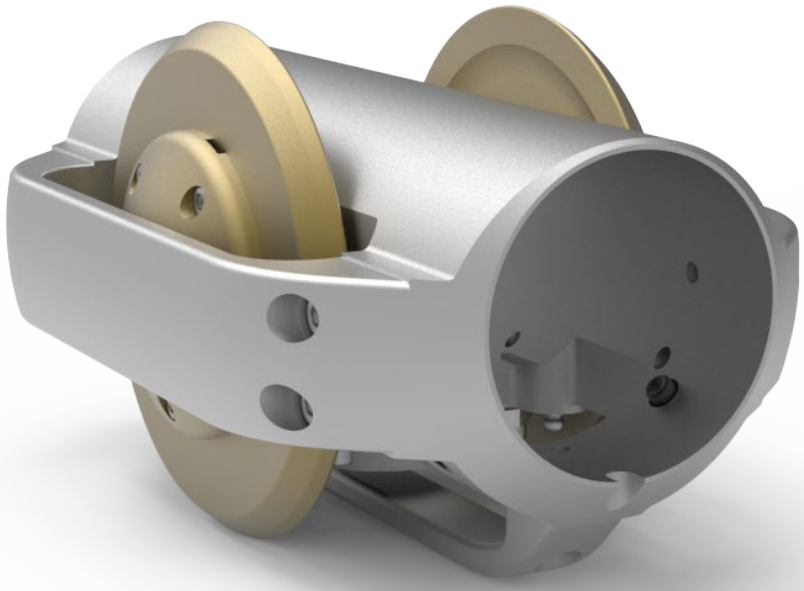
CENTERING

Centering Taxi TTB-X-515



DESCRIPTION:

TTB-X-515 Taxis are used to centralise tool strings in an 8.5” wellbore.

Taxis lock securely onto the housings or into c-spanner recess holes. Taxi wheels run on ball bearings in a sealed, pressure compensated, lubricant bath providing the lowest friction in class.

APPLICATION:

- Tool centralization without the need inefficient drag-inducing centralisers
- Cement evaluation services centralization in 9 5/8” CSG.
- Gravity logging up to 80 degrees well deviation
- Stick-slip and cable tension reduction
- Eliminate risk of tool differential sticking by offsetting tools from the borehole without the need for additional tool body standoffs

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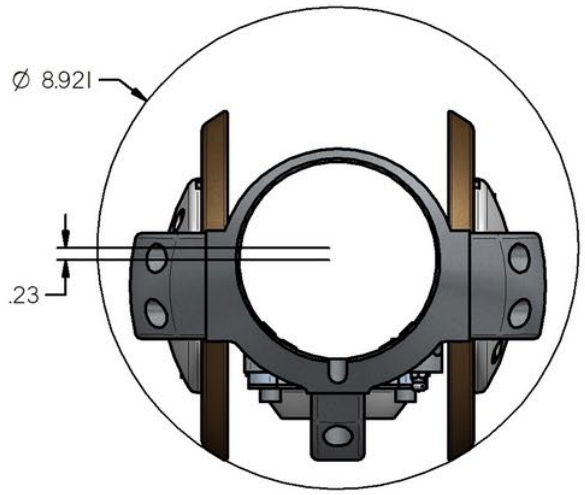
TECHNICAL SPECIFICATIONS	
Model	**TTB-X-515**
Weight	28 lbs
Length	11.6”
Volume	0.06ft3
Min. Hole Size	8.5”
Max. Hole size	24”
Drag Coefficient, dynamic	2%
Drag Coefficient, Static	4%
Temperature rating	350°F
Pressure rating	30,000 psi
Taxi OD	7.7”
Taxi Bore[1]	3-⅝”
Eccentralisation in 8.5” Wellbore[2]	< 0.01”

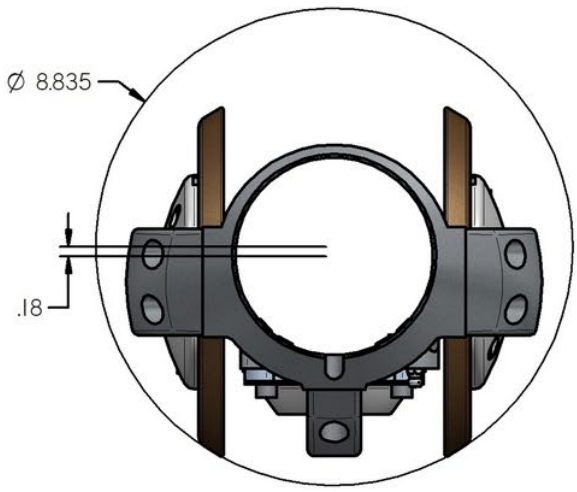
1 Fits a 3-5/8” logging tool and a 3-3/8” tool housing via a reducing sleeve.
2 See next page for examples on different casing sizes

MATERIALS	
Body	17-4 PH SS, Heat treated H1150
Bearings	Custom ball bearing
Lubrication	Active Diaphragm, Nitrile < 230°F Active Diaphragm, Viton < 480°F
Grease	Lubriplate 930AA
Fastening	304 Stainless Steel Cap Screws 1/4”, 3/16” hex UNC thread
Attachment	Alloy Steel grub Screw , 1/4” hex, UNC Thread, Dog end type
SWL for fishing	50,000 lbs
SWL Shear Set Screws	8,500 lbs

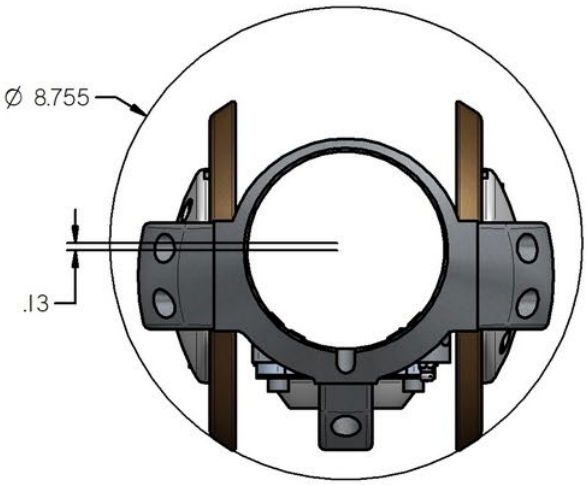
TTB-X-515 CENTRALIZATION IN 9-5/8” & 9-7/8” CASINGS



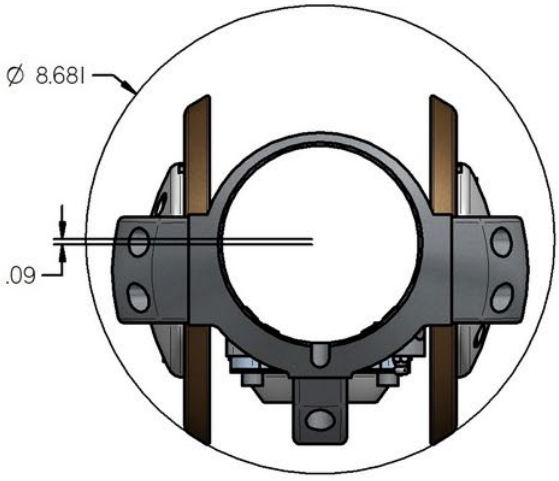
Casing OD 9-5/8" 36ppf



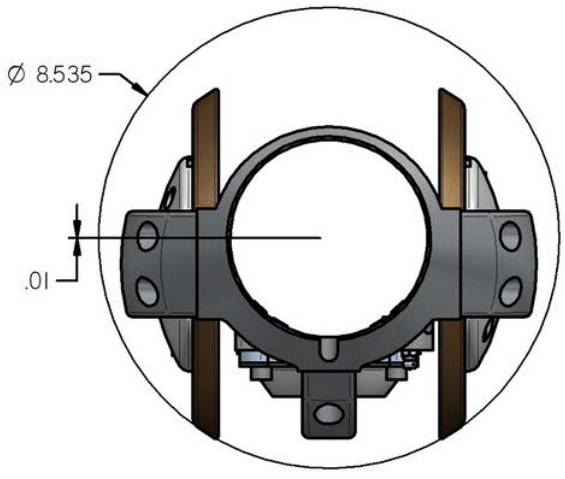
Casing OD 9-5/8" 40ppf



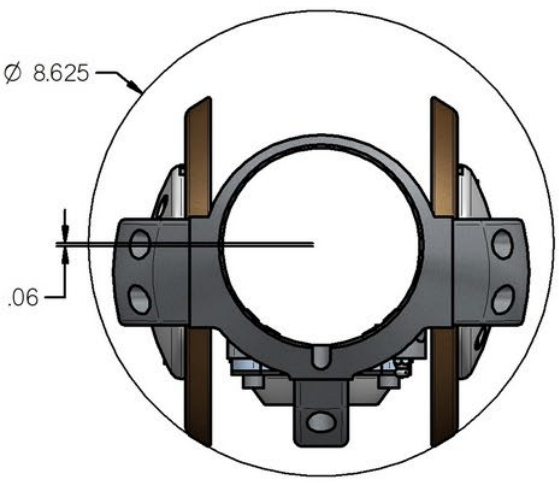
Casing OD 9-5/8" 43.5ppf



Casing OD 9-5/8" 47ppf



Casing OD 9-5/8" 53.5ppf



Casing OD 9-7/8" 62.8ppf

Figure 4: TTB - X515 eccentralization examples

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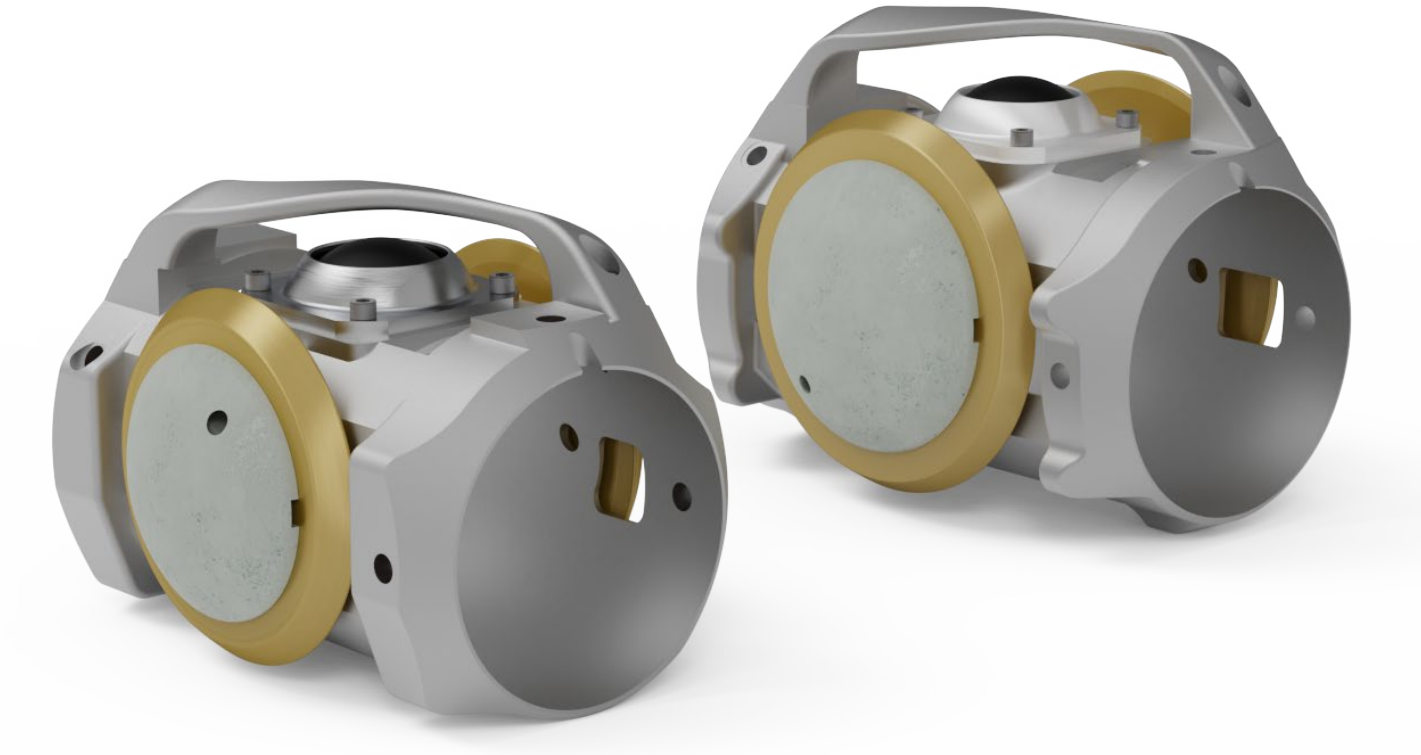
FORMATION TESTING

Formation Tester Taxis TTB-S75 and TTB-S85



DESCRIPTION:

Tool Taxi specifically designed for Pressure and Sampling tools.

TTB-S 75 / 85 are slip-over tool taxis that lock securely onto 4.75”-5.25” tool housings and allow the heavy formation testing tool string to be fully carried on wheels.

Taxi wheels run on ball bearings in a sealed, pressure compensated, lubricant bath providing the lowest friction in class.

APPLICATION:

- Proven gravity logging up to 80° well deviation using a slip-over wheel design
- Orient probe in the desired direction for optimal pressure measurements and samples
- Stick-slip and cable tension reduction
- Eliminate risk of tool differential sticking by offsetting tools from the borehole without the need for additional tool body standoffs
- Robust design with a very low maintenance requirement

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TECHNICAL SPECIFICATIONS		
Model	**TTB-S 75**	**TTB-S 85**
Weight	22 lbs	32 lbs
Length	9.5”	10.5
Volume	0.04ft3	0.06ft3
Min. Hole Size	8-¼”	9½”
Max. Hole size	14.75”	22”
Drag Coefficient, dynamic	2%	
Drag Coefficient, Static	4%	
Temperature rating	350°F	
Pressure rating	30,000 psi	
Taxi OD	7-½”	8-½”
Wheel diameter	6”	6-1/4”
Taxi Bore[1] [2]	4-¾”	5”

1 Custom TTB-S85 with 5.25” bore (TTB-MDT-S85) is also available for Ultra-High pressure 30KPsi tools.
2 TTB-S75 can be sleeved down to run 4.5” and 4.44”, TTB-S85 can be sleeved down to 4.75” and 4.5”

MATERIALS	
Body	17-4 PH SS, Heat treated H1150
Bearings	Custom ball bearing
Lubrication	Active Diaphragm, Nitrile < 230°F Active Diaphragm, Viton < 480°F
Grease	Lubriplate 930AA
Fastening	304 Stainless Steel Cap Screws 1/4”, 3/16” hex UNC thread
Attachment	Alloy Steel grub Screw , 1/4” hex, UNC Thread, Dog end type
SWL for fishing	50,000 lbs
SWL Shear Set Screws	8,500 lbs[1]

1 Up to 12,700lb depending on tool modules used.

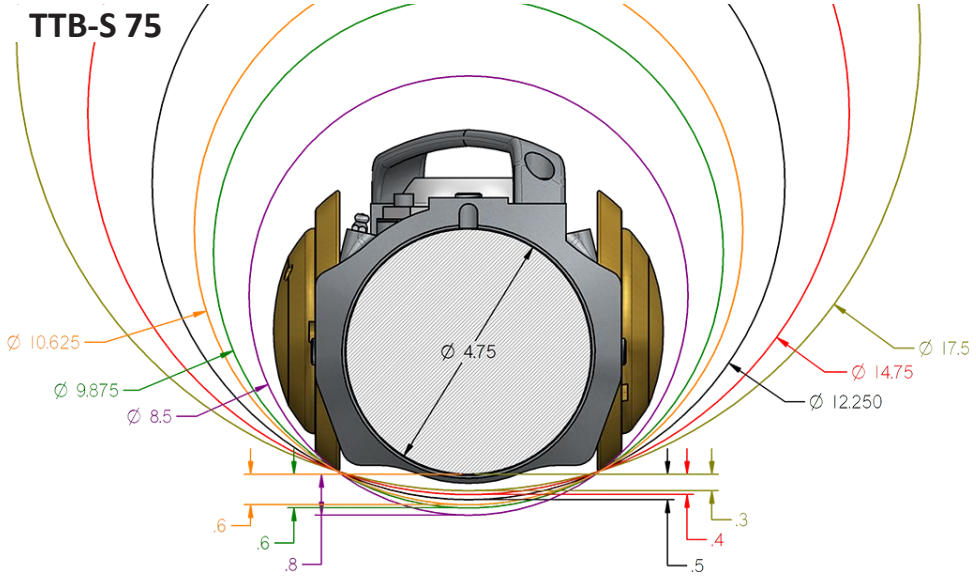

Figure 5: TTB - S75 Standoff for a 4-3/4"Tool

STANDOFF TABLE			
Bit Size	Tool Housing OD:		
	4-3/4"	4-1/2"	4.44"
8 1/2"	0.8"	0.9"	0..9"
12 1/4"	0.5"	0.6"	0.6"
14 3/4"	0.4"	0.5"	0.55"
17 1/2"	0.3"	0.4"	0.47"

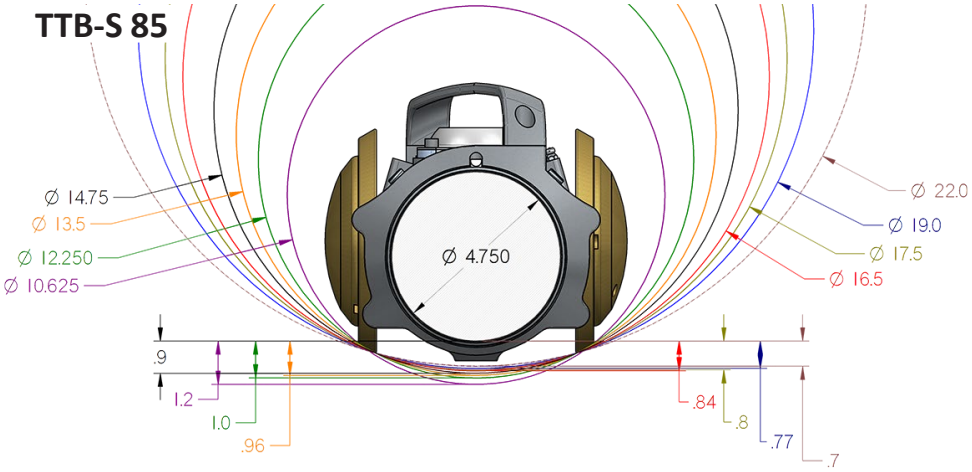

Figure 6: TTB - S85 Standoff for a 4-3/4"Tool

STANDOFF TABLE				
Bit Size	Tool Housing OD:			
	4-3/4"	4-1/2"	4.44"	5"
10 5/8"	1.2"	1.3"	1.4"	1.1"
12 1/4"	1"	1.2"	1.2"	0.9"
14 4/4"	0.9"	1"	1.1"	0.8"
17 1/2"	0.8"	0.9"	1"	0.7"

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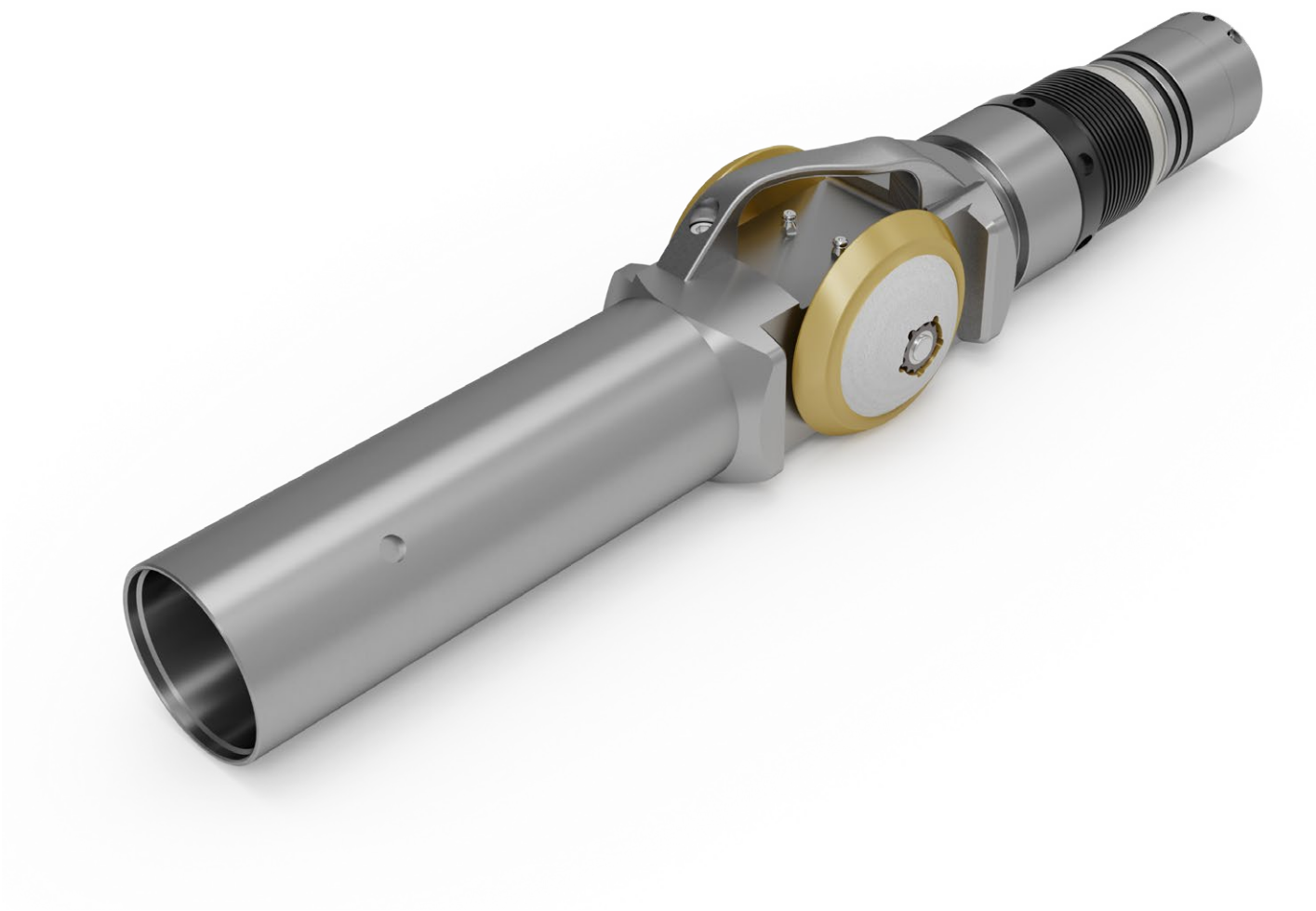
IN-LINE TOOL TAXIS

In-line Orienting Tool Taxi: TTB/TTC-IL6O



DESCRIPTION:

The IL6O are in-line tool taxis designed to orient & reduce the drag coefficient of a logging tool string. They come in two variants: bush bearing (TTC) and ball bearing(TTB).

Taxis make up in-line, directly to wireline logging tools, without the need for adapters.

The Taxis are designed for use in small wellbores (6.0" +)

These taxis are available with tungsten carbide bush bearings or Ball Bearing.

APPLICATION:

- Gravity logging up to 80° well deviation
- Orient logging tool sensors, cores, pressure measurements and samples without the need for standoffs, bow springs, tool turners etc.
- Stick-slip and cable tension reduction
- Eliminate risk of tool differential sticking by offsetting tools from the borehole
- Robust design. Very low maintenance requirement.

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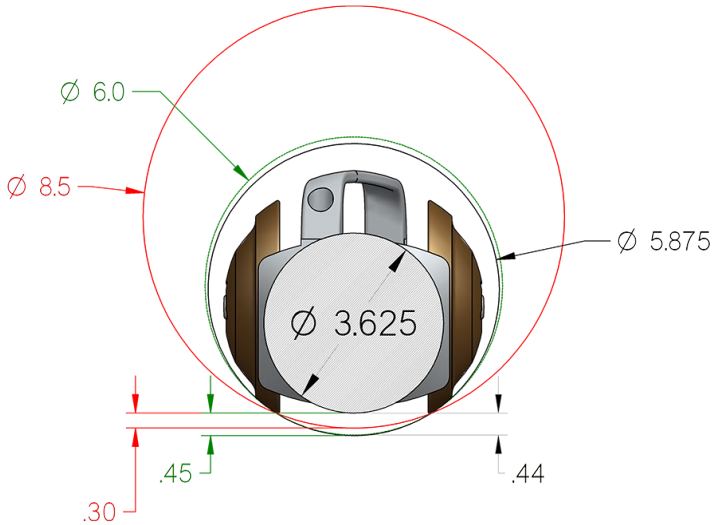
TECHNICAL SPECIFICATIONS		
Model	**TTC-IL6O**	**TTB-IL6O**
Weight	32.8 lbs	
Length[1]	19.7”	
Volume	0.11ft3	
Min. Hole Size	5-⅞”	
Max. Hole size	8.5”	
Drag Coefficient, dynamic	4%	2%
Drag Coefficient, Static	8%	4%
Temperature rating	350°F	
Pressure rating	20,000 psi	
Taxi OD	5-¼”	
Wheel diameter	4”	
Standoff in 6” wellbore[2] [3]	0.44”	
Connection[4]	In-Line with all through wired tools	

1 TTC-IL6A is non NRTA version with a length of 17..8”
2 For 3-5/8” OD tool housing.
3 Set Standoff parameters to appropriate offset, see table below.
4 Fits threaded connections for 31 pins on 3-3/8” and 3-5/8” tools.

MATERIALS		
Body	17-4 PH SS, Heat treated H1150	
Bearings	Tungsten Carbide Composite[1]	Custom ball bearing
Lubrication	Active Diaphragm, Nitrile < 230°F Active Diaphragm, Viton < 480°F	
Grease	Lubriplate 930AA	
Fastening	304 Stainless Steel Cap Screws 1/4”, 3/16” hex UNC thread	
SWL for fishing	30,000 lbs	

1 Tungsten carbide must not be subjected to shock loadings, Do not hit with a hammer or use gas torch.



STANDOFF TABLE		
Bit Size	**Tool Housing OD:**	
	3-3/8”	**3-5/8”**
5 7/8”	0.6”	0.4”
6”	0.6”	0.4”
8 1/2”	0.4”	0.3”

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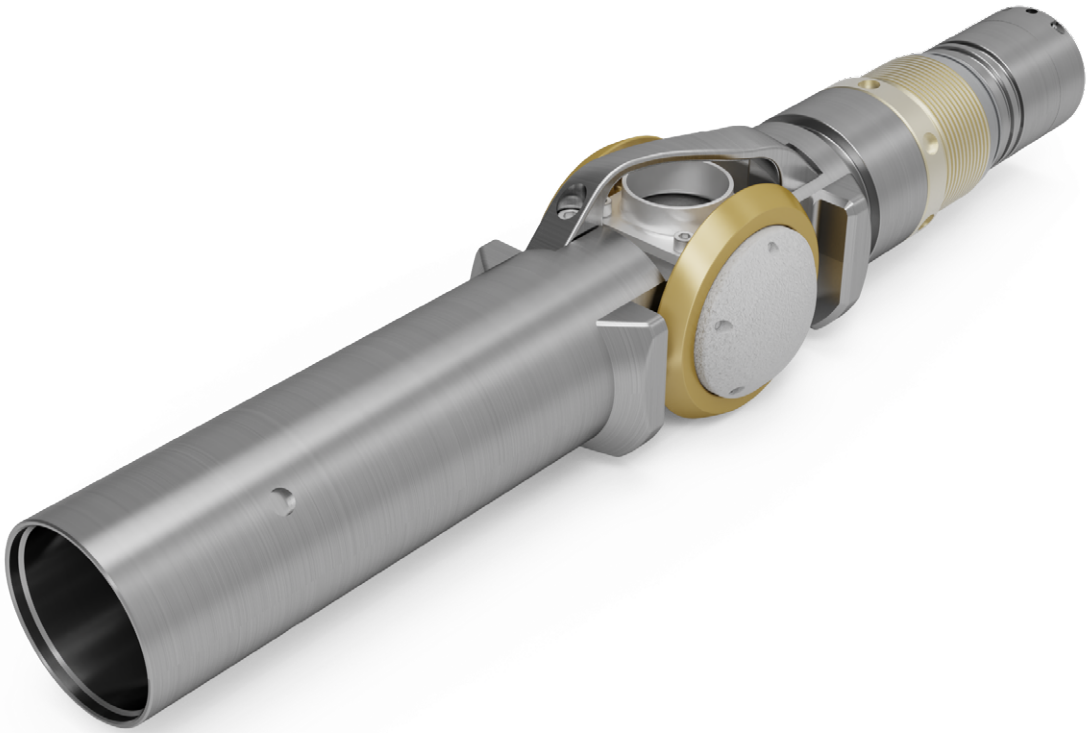
In-line Conveyance Tool Taxi: TTB-IL6C



DESCRIPTION:

TTB-IL6C are in-line conveyance tool taxis designed to reduce drag coefficient of a logging tool string.

Taxis make up in-line, directly to wireline logging tools, without the need for adapters.

The Taxis are designed for use in small wellbores (6.0” +) in conjunction with the In-line orienting taxis. It design provides greater standoff allowing the combination of grater OD tools in the string.

These taxis use low friction custom ball bearings.

APPLICATION:

- Gravity logging up to 80° well deviation.
- Stick-slip and cable tension reduction
- Eliminate risk of tool differential sticking by offsetting tools from the borehole
- Robust design. Very low maintenance requirement.

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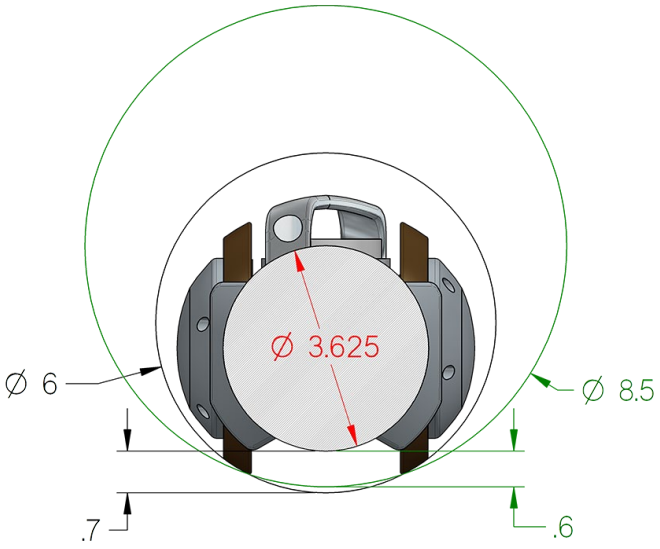
TECHNICAL SPECIFICATIONS	
Model	TTB-IL6C
Weight	32.8 lbs
Length	19.7”
Volume	0.11ft3
Min. Hole Size	5-⅞”
Max. Hole size	8.5”
Drag Coefficient, dynamic	2%
Drag Coefficient, Static	4%
Temperature rating	350°F
Pressure rating	20,000 psi
Taxi OD	5-¼”
Wheel diameter	4”
Standoff in 6” wellbore[1] [2]	0.8”
Connection[3]	In-Line with all through wired tools

1 For 3-5/8” OD tool housing.
2 Set Standoff parameters to appropriate offset, see table on next page.
3 Fits threaded connections for 31 pins on 3-3/8” and 3-5/8” tools.

MATERIALS	
Body	17-4 PH SS, Heat treated H1150
Bearings	Custom ball bearing
Lubrication	Active Diaphragm, Nitrile < 230°F Active Diaphragm, Viton < 480°F
Grease	Lubriplate 930AA
Fastening	304 Stainless Steel Cap Screws 1/4”, 3/16” hex UNC thread
SWL for fishing	30,000 lbs



STANDOFF TABLE			
Bit Size	**Tool Housing OD:**		
	3-3/8”	**3-5/8”**	**4-1/2”**
6”	0.9”	0.7”	0.2”
8 1/2”	0.8”	0.6”	0.1”

Bit size	Eccentralisation
5 7/8””	0.4
6”	0.45
6 1/8”	0.5

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GUIDES AND HOLEFINDERS

Petromac offers a range of holefinders to fit various logging tools, these guides enable passing through washout and ledges seamlessly and without losing momentum.

UNIVERSAL HOLE FINDER

Pathfinder

DESCRIPTION:

General Purpose guide designed to work in all deviations Environments.

The Pathfinder body is manufactured from carbon fiber composite allowing for feather-light weight and steel type strength.

The hole-finder has an integrated flex joint and swivel at the top, allowing it to rotate and twist as required to follow well path.

Robust design with minimal maintenance requirements

APPLICATION:

- Ability to navigate any step ledge height.
- Effective in vertical or deviated holes.
- Suitable for hole small and Large hole sizes
- Helps tool run over cuttings and other low side obstructions.
- Wide range tool Combinability

TECHNICAL SPECIFICATIONS	
Model	PathFinder
Weight	51 lbs
Length	102”
Volume	0.3ft3
Min. Hole size	5-¾”
Max. Hole size	22”
Temperature rating	350°F
Pressure rating[1]	30,000 psi
OD	4-½”
Flex Joint	6 deg

1 For threaded style connections pressure rating is 20,000psi

MATERIALS	
Mandrel	Carbon Fibre
Other Components:	17-4 PH SS
SWL for fishing, Tensile	14,000lbs @25°C - 6,000lbs @177°C
Compressive Strength	13,500lbs @25°C - 6,000lbs @177°C
Fastenings	304 stainless Steel Cap screws -1/4”x$^{3}/_{16}$”
SWL, Shear set screws	8,500 lbs
Connection	Halliburton J-Latch, Baker Hughes WTS, SLB Threaded ring

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Pathfinder HT

DESCRIPTION:

General Purpose guide designed to work in all deviations Environments.

The Pathfinder HT features a body made from a lightweight stainless steel alloy for feather-light weight. It also includes a dual leaf bowspring centralizer.

The hole-finder has an integrated flex joint and swivel at the top, allowing it to rotate and twist as required to follow well path.

Robust design with minimal maintenance requirements

APPLICATION:

- Ability to navigate any step ledge height.
- Effective in vertical or deviated holes.
- Suitable for hole small and Large hole sizes
- Helps tool run over cuttings and other low side obstructions.
- Wide range tool Combinability

TECHNICAL SPECIFICATIONS		
Model	PathFinder HT	PathFinder HT (Titanium)
Weight	77 lbs	51lbs
Length[1]	90”	
Volume	0.2ft3	
Min. Hole size	5-¾”	
Max. Hole size	22”	
Temperature rating	400°F	
Pressure rating[2]	30,000 psi	
Min. OD	5”	
Flex Joint	6 deg	

1 Make Length depnts on crossover adaptor used, refer to user manual for details
2 For threaded connections pressure rating is 20,000psi

MATERIALS		
Mandrel	2205 SS	Titanium 6Ai-4V
Bottom Noze	17-4 PH SS	Titanium 6Ai-4V
Other Components:	17-4 PH SS	
SWL for fishing, Tensile	14,000lbs	
Compressive Strength	17,500lbs	12,500lbs
Fastenings	304 stainless Steel Cap screws -1/4”x$^{3}/_{16}$”	
Connection	Halliburton J-Latch, Baker Hughes WTS, SLB Threaded ring	

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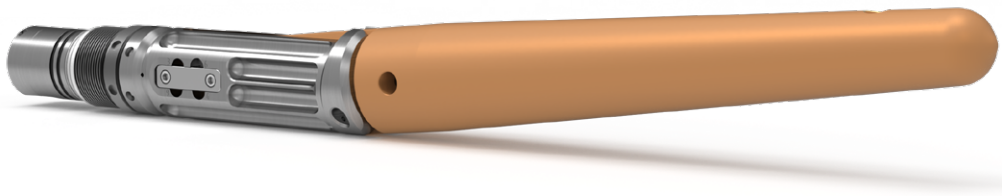
FIXED ANGLE GUIDE FOR SLB

Adjustable Angle Guide AHFC



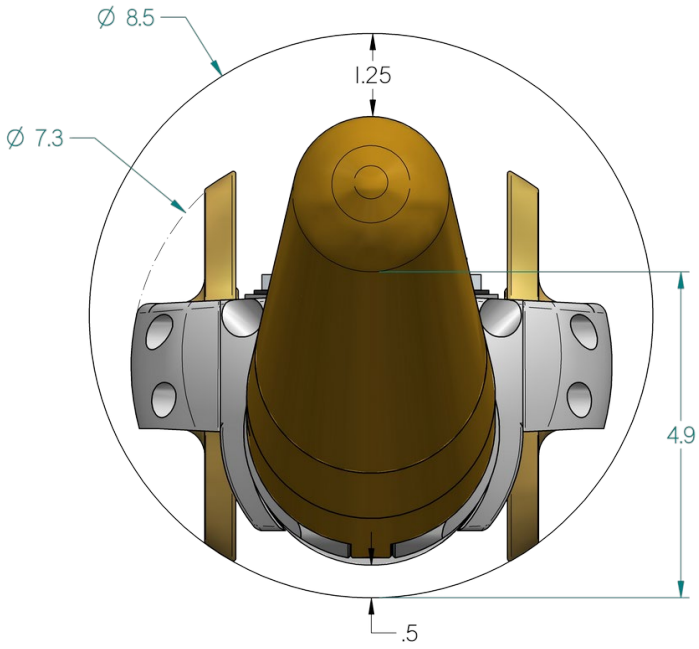
DESCRIPTION:

THE AHFC GUIDE HAS AN ADJUSTABLE NOSE ANGLE. IT IS SET TO SUIT THE HOLE SIZE AND LOGGING TOOL STANDOFF.

The Guide is suitable for attachment to the bottom of any through-wired tool.

APPLICATION:

- Ability to navigate step ledges of up to 5”
- Adjustable angle to suit multiple hole sizes or situations
- Helps tool run over cuttings and other low side obstructions
- Attached to the bottom without any electrical interference
- Robust design with negligible maintenance requirements



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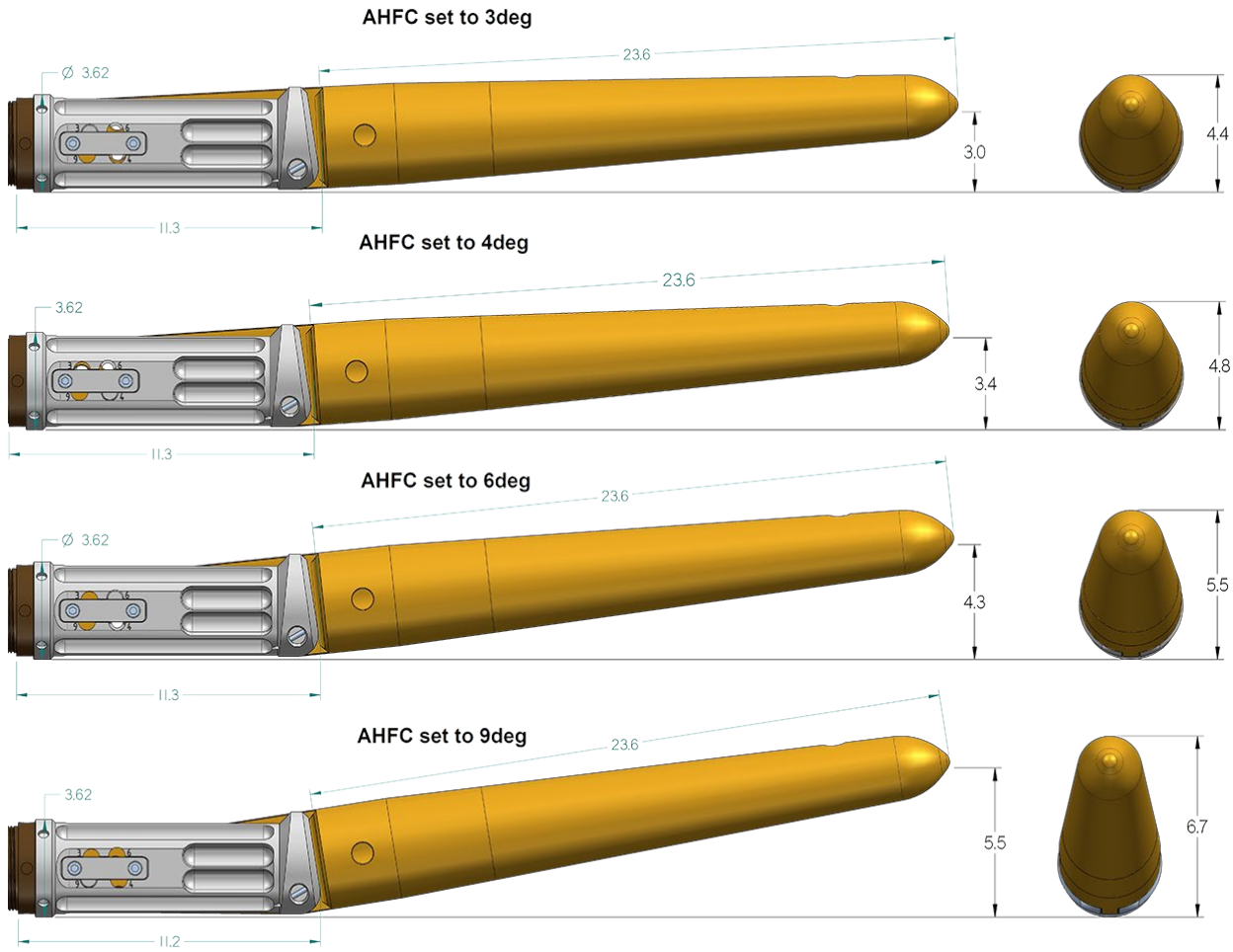
TECHNICAL SPECIFICATIONS	
Model	AHFC
Weight	36 lbs
Length	35”
Volume	0.12ft^3
OD	4” (no-go collar)
Nose Angle	Adjustable: 3,4,6 or 9 degrees
Min. Hole size	5”
Max. Hole size	No limit
Temperature rating	400°F
Pressure rating[1]	20,000 psi

1 AHFC-30K is also available for use in high pressure applications up to 30kpsi.

MATERIALS	
Body	17-4 PH SS, Heat treated H1150
Pivot Pin/ Angle setting pin	17-4 PH SS, 16mm diameter
Nose	Aluminum
SWL for fishing, Tensile	33,400 lbs
Compressive strength	33,400 lbs



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8-1/2" and larger configuration

8-1/2" and smaller configuration larger

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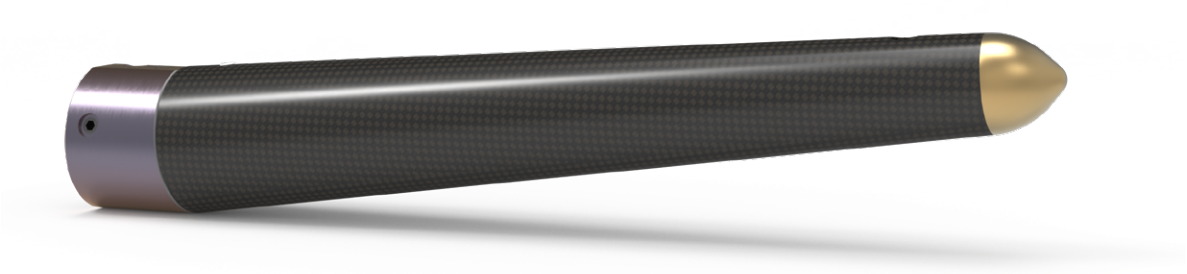
Fixed Angle Guide for AIT and ZAIT



DESCRIPTION:

Induction Guides, such as HF6-AIT and HF6-ZAIT, are specifically designed to be run at the bottom of induction logging tools.

The Guides have a fixed nose angle of 6deg or 4deg, depending on hole size application.

The Induction Guide nose is manufactured from carbon fiber composite.

Robust design with minimal maintenance requirements.

APPLICATION:

- Ability to navigate step ledges of up to 4.5”
- Helps tool run over cuttings and other low side obstructions.
- Suitable for Array Induction tools, as it doesn't present any electrical interference.
- Guides for smaller holes can be custom manufactured

TECHNICAL SPECIFICATIONS		
Model	HF6-AIT /ZAIT	HF4-AIT /ZAIT
Weight	9 lbs	
Length	26”	
Volume	0.04ft^3	
OD	5"	
Nose Angle	6 degrees	4 degrees
Maximum step ledge	Up to 4-1/2" in 8-1/2" wellbore	Up to 3-3/4" in 6" wellbore
Min. Hole size	7”	5-5/8”
Max. Hole size	No limit	No Limit
Temperature rating	350°F	
Pressure rating	20,000 psi	

MATERIALS	
Body	17-4 PH SS, Heat treated H1150
Nose	Carbon Fibre
SWL for fishing, Tensile	5,000 lbs
Compressive strength	6,000 lbs

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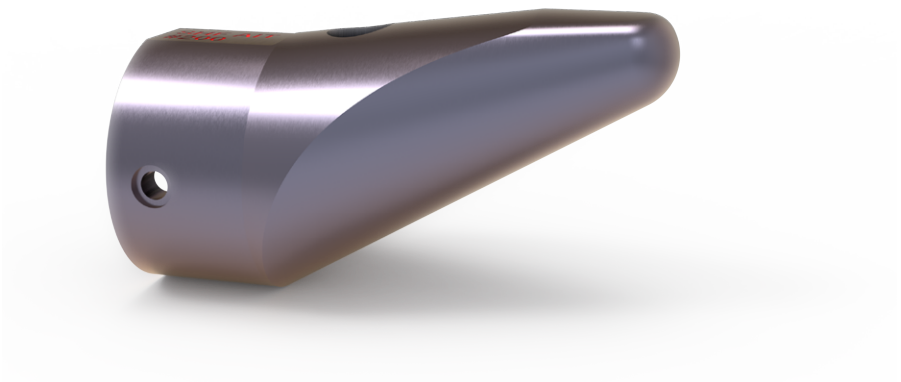
WIRELINE EXPRESS

Fixed Angle Guide SHF-AIT



DESCRIPTION:

A new Guide for both AIT and ZAIT, specifically designed to provide the greatest clearance possible in small holes.

Robust design with minimal maintenance requirements

APPLICATION:

- Ability to navigate step ledges of up to 3.1.”
- Suitable for hole sizes 6-1/8” and smaller
- Helps tool run over cuttings and other low side obstructions.
- Suitable for Array Induction tools, as it doesn't present any electrical interference.

TECHNICAL SPECIFICATIONS	
Model	**SHF-AIT**
Weight	10 lbs
Length	7.8”
Volume	0.01ft^3
OD	4.4”
Nose Angle	4 degrees
Maximum step ledge	Up to 3.6" (6" wellbore, tool with 1/2" standoff)
Min. Hole size	5-½”
Max. Hole size	8-½”
Temperature rating	350°F
Pressure rating	30,000 psi

MATERIALS	
Body	17-4 PH SS, Heat treated H1150
SWL for fishing, Tensile	10,000 lbs
Compressive strength	8,000 lbs

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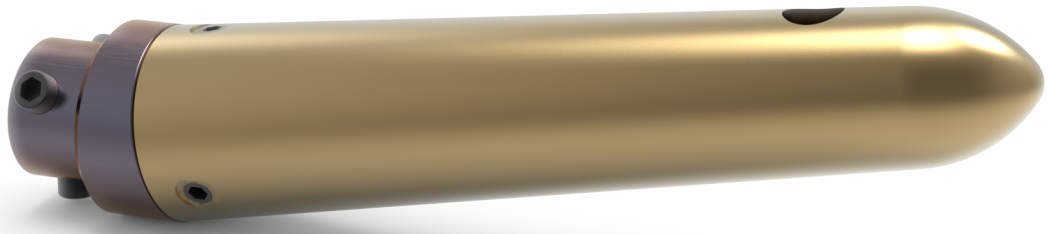
Fixed Angle Guide QAIT



DESCRIPTION:

The Guide has a fixed nose angle of 12deg.

Guides for smaller holes can be custom manufactured.

Robust design with no electrical interference and negligible maintenance requirements.

APPLICATION:

- Ability to navigate step ledges of up to 4”
- Helps tool run over cuttings and other low side obstructions.
- QAIT hole finders are specifically designed to be run at the bottom of QAIT tools for high temperature and slim hole applications.

TECHNICAL SPECIFICATIONS		
Model	**HF12-QAIT**	**HF9-QAIT**
Weight	6 lbs	
Length	13”	
Volume	0.02ft^3	
OD	2.8”	
Nose Angle	12 degrees	9 degrees
Maximum step ledge	Up to 4-½" in 8-½" wellbore	Up to 3-⅜" in 6" wellbore
Min. Hole size	8-½"	5-⅝”
Max. Hole size	No limit	No Limit
Temperature rating	400°F	
Pressure rating	30,000 psi	

MATERIALS	
Body	17-4 PH SS, Heat treated H1150
Nose	Aluminum
SWL for fishing, Tensile	20,000 lbs
Compressive strength	2,000 lbs

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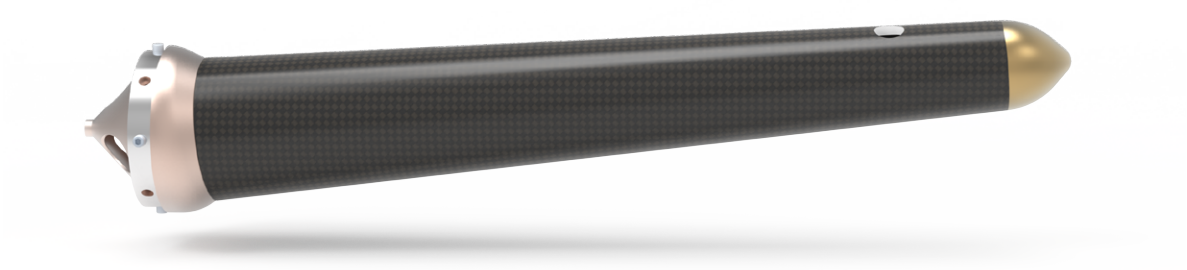
Fixed Angle Guide FMI



DESCRIPTION:

FMI hole finders are specifically designed to attach to the bottom of the Formation Micro-Imager.

The FMI hole finder is ultra-lightweight and virtually buoyant in drilling mud. It does not interfere with Pad contact and data quality is ensured.

The Guides have a fixed nose angle of 5deg or 3deg.

APPLICATION:

The hole finder will navigate the FMI overstep-ledges 4" high.

- Helps tool run over cuttings and other low side obstructions.
- Robust design with no electrical interference and negligible maintenance requirements.
- The Petromac system prevents image rotation.
- Guides for smaller holes can be custom manufactured.
- No electrical interference and negligible maintenance requirements

TECHNICAL SPECIFICATIONS		
Model	HF5-FMI	HF4-FMI
Weight	5.5 lbs	
Length	24"	
Volume	0.04ft^3	
OD	4-½"	
Nose Angle	5 degrees	3 degrees
Maximum step ledge	Up to 4-½" in 8-½" wellbore	Up to 4" in 6" wellbore
Min. Hole size	7"	5-⅝"
Max. Hole size	No limit	No Limit
Temperature rating	350°F	
Pressure rating	30,000 psi	

MATERIALS	
Body	Inconel 718
Nose	Carbon Fibre
SWL for fishing, Tensile	10,000 lbs
Compressive strength	8,000 lbs

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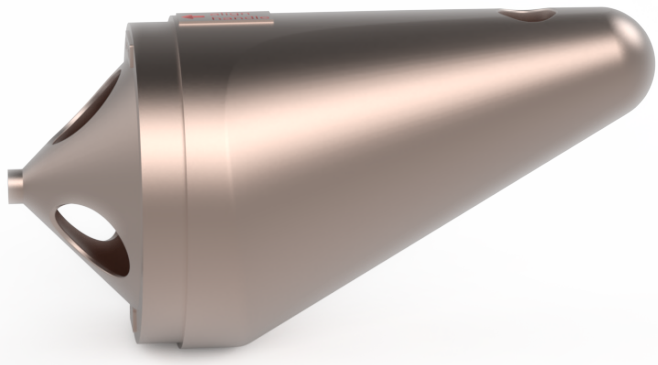
Fixed Angle Guide SHF-FMI



DESCRIPTION:

A new Guide for the Formation Micro-Imager, specifically designed to provide the greatest clearance possible in small holes.

The SHF-FMI hole finder maintains key elements from our previous range: ultra-lightweight and does not interfere with Pad contact.

APPLICATION:

- The hole finder will navigate past ledges 3” high.
- Helps tool run over low side obstructions and cuttings.
- Robust design with no electrical interference and negligible maintenance requirements.
- The Petromac system prevents image rotation.

TECHNICAL SPECIFICATIONS	
Model	**SHF-FMI**
Weight	2.2 lbs
Length	6.5”
Volume	0.01ft^3
OD	4-½”
Nose Angle	4 degrees
Maximum step ledge	Up to 3" (6" wellbore)
Min. Hole size	5-⅝”
Max. Hole size	8-½”
Temperature rating	400°F
Pressure rating	30,000 psi

MATERIALS	
Body	Titanium
SWL for fishing, Tensile	10,000 lbs
Compressive strength	8,000 lbs

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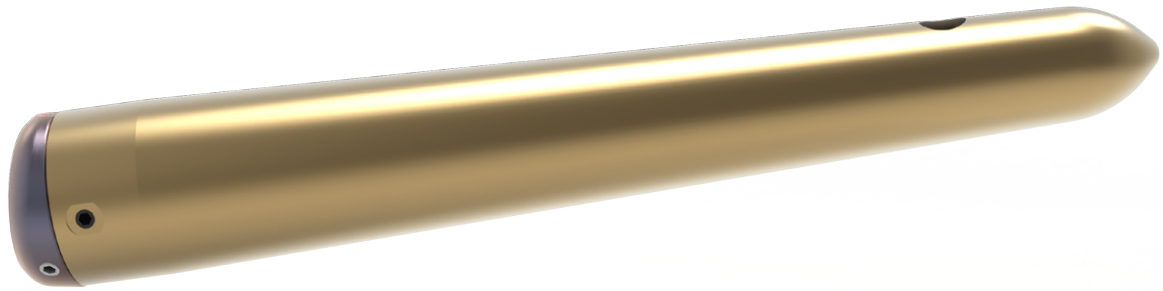
Fixed Angle Guide HF8-MSCT



DESCRIPTION:

MSCT hole finders are specifically designed to be run at the bottom of sidewall coring tools, such as XL-Rock and MSCT.

APPLICATION:

- Ability to navigate step ledges of up to 4.5”
- Orient the coring tool to obtain cores in the direction of stress plane and for optimal core recovery.
- Helps tool run over cuttings and other low side obstructions.

TECHNICAL SPECIFICATIONS	
Model	**HF8-MSCT**
Weight	15 lbs
Length	24”
Volume	0.04ft^3
OD	4-1/2”
Nose Angle	8 degrees
Maximum step ledge	Up to 4-½” (in 8-½” wellbore)
Min. Hole size	8-½”
Max. Hole size	No limit
Temperature rating	400°F
Pressure rating	30,000 psi

MATERIALS	
Body	17-4 PH SS, Heat treated H1150
Nose	Aluminium
SWL for fishing, Tensile	10,000 lbs
Compressive strength	8,000 lbs

Petromac

WIRELINE EXPRESS

Fixed Angle Guide HF6-MDT

DESCRIPTION:

Hole finders are specifically designed to be run at the bottom of formation testing strings with a fixed angle that does not interfere with probe setting.

New model allows probe orientation to high to low side of the wellbore.

APPLICATION:

- Ability to navigate step ledges up to 4.5".
- Helps tool run over cuttings and other low side obstructions.
- Robust design with no electrical interference and negligible maintenance requirements.
- Fixed angle that does not obstruct probe contact with borehole.

TECHNICAL SPECIFICATIONS	
Model	**HF6-MDT**
Weight	25 lbs
Length	24"
Volume	0.04ft^3
OD	4-½"
Nose Angle	6 degrees
Maximum step ledge	Up to 4-½" (in 8-½" wellbore)
Min. Hole size	7"
Max. Hole size	No limit
Temperature rating	350°F
Pressure rating	20,000 psi

MATERIALS	
Body	17-4 PH SS, Heat treated H1150
Nose	Aluminum
SWL for fishing, Tensile	10,000 lbs
Compressive strength	8,000 lbs

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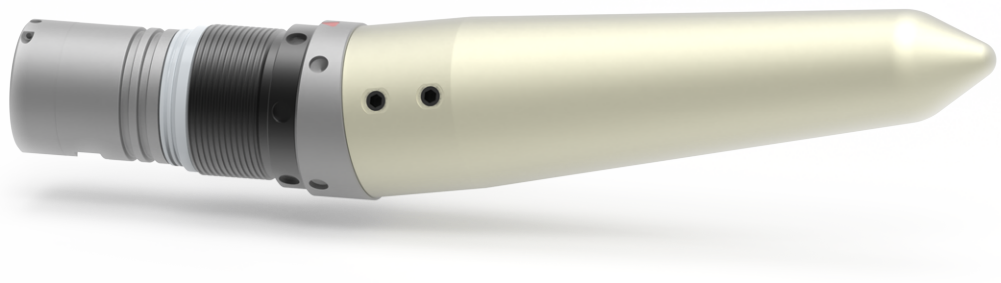
WIRELINE EXPRESS

Fixed Angle Guide HF9-BN6



DESCRIPTION:

Short Length fixed 9-degree guide designed for small size holes, suitable for attachment to the bottom of any through-wired tool.

APPLICATION:

- Use in combination with Inline Taxis: TTC-IL6
- Ability to navigate step ledges up to 3.6".
- Attached to the bottom without any electrical interference.
- Robust design with negligible maintenance requirements
- Helps tool run over cuttings and other low side obstructions.

TECHNICAL SPECIFICATIONS	
Model	**HF9-BN6**
Weight	22 lbs
Length	14.5"
Volume	0.03ft^3
OD	4.8"
Nose Angle	9 degrees
Maximum step ledge	Up to 3.6"
Min. Hole size	5-⅝"
Max. Hole size	No limit
Temperature rating	350°F
Pressure rating	20,000 psi

MATERIALS	
Body	17-4 PH SS, Heat treated H1150
Nose	Aluminum
SWL for fishing, Tensile	10,000 lbs
Compressive strength	8,000 lbs

Petromac

WIRELINE EXPRESS

FIXED ANGLE GUIDES FOR HALLIBURTON

Hole Finder guide J-Latch - HF9J

DESCRIPTION:

Fixed angle hole-finder specifically designed to be installed on J-Latch connection at the bottom of the string.

Robust design with minimal maintenance requirements

APPLICATION:

- Ability to navigate step ledges of up to 4.5”
- Configurable for hole sizes 6-1/8” and larger
- Helps tool run over cuttings and other low side obstructions.
- Guides for smaller holes can be custom manufactured,

TECHNICAL SPECIFICATIONS	
Model	**HF9J**
Weight	16 lbs
Length	17.6”
Volume	0.04ft^3
OD	3.62”
Nose Angle	9 degrees
Maximum step ledge	Up to 4" in 8-½" wellbore
Min. Hole size	6- $^1/_8$”
Max. Hole size	No limit
Temperature rating	350°F
Pressure rating	30,000 psi

MATERIALS	
Body	17-4 PH SS, Heat treated H1150
Nose	Carbon Fibre
SWL for fishing, Tensile	11,000 lbs
Compressive strength	11,000 lbs

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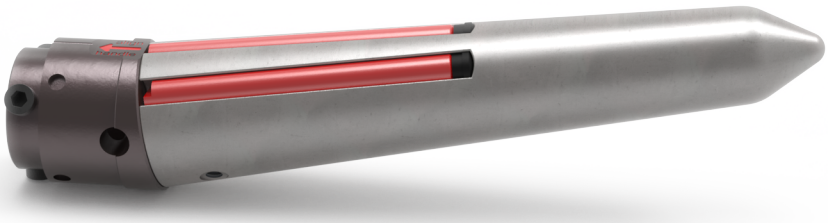
Holfefinder Guide Induction - HF9-ACRT



DESCRIPTION:

Fixed angle hole-finder specifically designed to be installed on J-Latch connection at the bottom of the string.

Robust design with minimal maintenance requirements.

APPLICATION:

- Ability to navigate step ledges of up to 4.5”
- Configurable for hole sizes 6-1/8” and larger
- Helps tool run over cuttings and other low side obstructions.
- Guides for smaller holes can be custom manufactured.

TECHNICAL SPECIFICATIONS	
Model	**HF9-ACRT**
Weight	16 lbs
Length	17.6”
Volume	0.04ft^3
OD	3.62”
Nose Angle	9 degrees
Maximum step ledge	Up to 4" in 8-½" wellbore
Min. Hole size	6- $^1/_8$”
Max. Hole size	No limit
Temperature rating	350°F
Pressure rating	30,000 psi

MATERIALS	
Body	17-4 PH SS, Heat treated H1150
Nose	Aluminum
SWL for fishing, Tensile	11,000 lbs
Compressive strength	11,000 lbs

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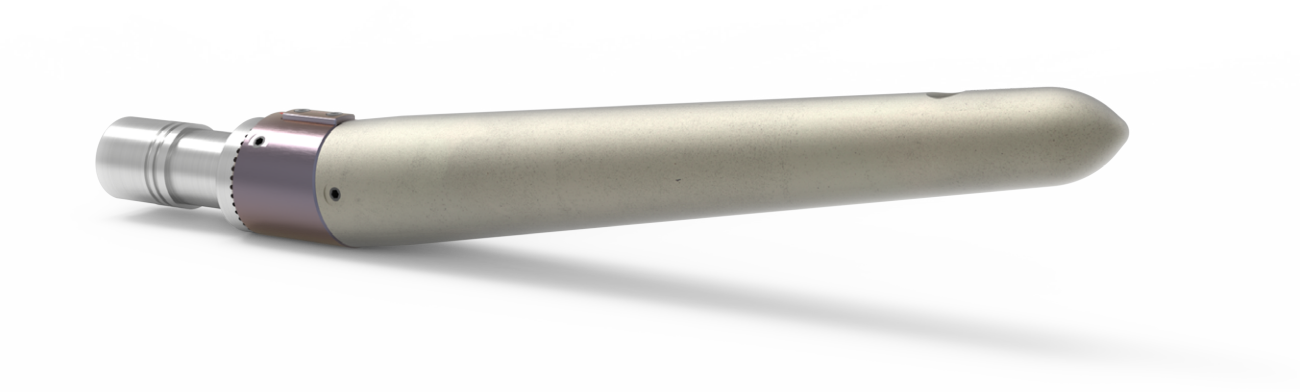
WIRELINE EXPRESS

FIXED ANGLE GUIDES FOR BAKER HUGHES

Hole Finder Guide WTS Connection



DESCRIPTION:

Hole finder specifically designed to be run at the bottom of through-wired tools.

Depending on hole size application the Guide can be configured with 9deg nose section or 6deg nose section.

Robust design with minimal maintenance requirements.

APPLICATION:

- Ability to navigate step ledges of up to 4.5”
- Adjustable Azimuth
- Configurable for hole sizes 6-1/8” and larger
- Helps tool run over cuttings and other low side obstructions.
- Guides for smaller holes can be custom manufactured.

TECHNICAL SPECIFICATIONS		
Model	**HF9-B**	**HF6-B**
Weight	27.3 lbs	25 lbs
Length	27.5”	26"
Volume	0.04ft^3	
OD	4.8"	
Nose Angle	9 degrees	
Maximum step ledge	Up to 4-½" in 8-½" wellbore	Up to 3" in 6" wellbore
Min. Hole size	7"	6”
Max. Hole size	No limit	No Limit
Temperature rating	350°F	
Pressure rating	20,000 psi	

MATERIALS	
Body	17-4 PH SS, Heat treated H1150
Nose	Aluminum
SWL for fishing, Tensile	10,000 lbs
Compressive strength	20,000 lbs

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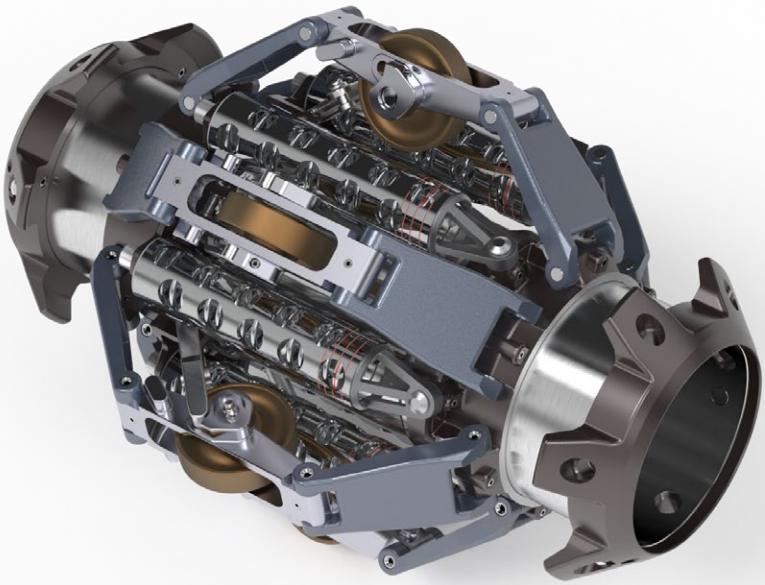
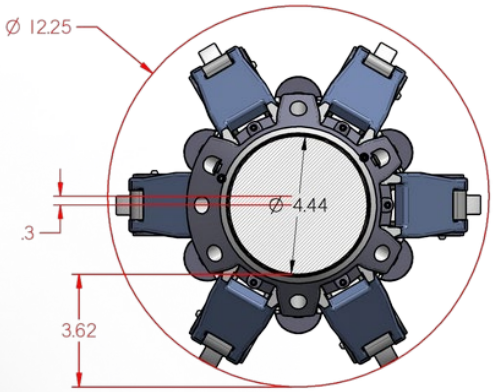
FOCUS
PRECISION CENTRALISERS

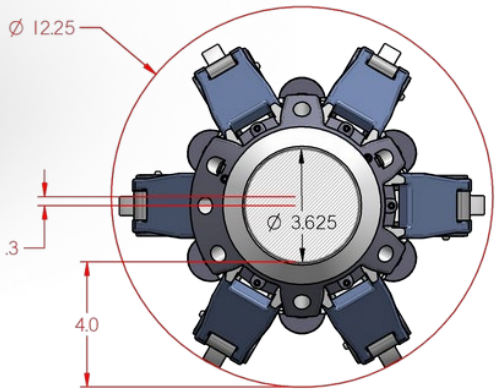
FOCUS CENTRALISERS

CENTRALISERS - OPEN HOLE

CP12 - Centering Parallelogram for 12in







DESCRIPTION:

The CP12 is the first ever Roller Centraliser for use in open hole. It is designed to centre wireline tools in 12-1/4" boreholes.

A ground-up analysis of centralization mechanics and consideration of logging challenges led to the revolutionary architecture of the CP12.

The patented suspension mechanism and low friction bearings eliminate wellbore drag, ensuring optimum data quality from hi-tech imaging and sonic tool.

The CP12 is compact (16in, 45lbf) which makes it easier to handle, minimizes tool-string weight and allows it to be attached in numerous positions.

APPLICATION:

- Centralization of wireline logging tools
- Tool Conveyance on highly deviated wells
- Reduction of Stick & Slip

CENTRALIZATION				
	Bit Size:			
	12-1/4"	14-3/4"	16"	17-1/2"
Distance from Centre of Borehole	0.3"	1.6"	2.3"	3.1"

STANDOFF (CLEARANCE) IN 12-1/4" HOLE				
	Tool housing OD:			
	3-5/8"	4.44"	5"	5-1/4"
Standoff	4"	3.6"	3.3"	3.2"

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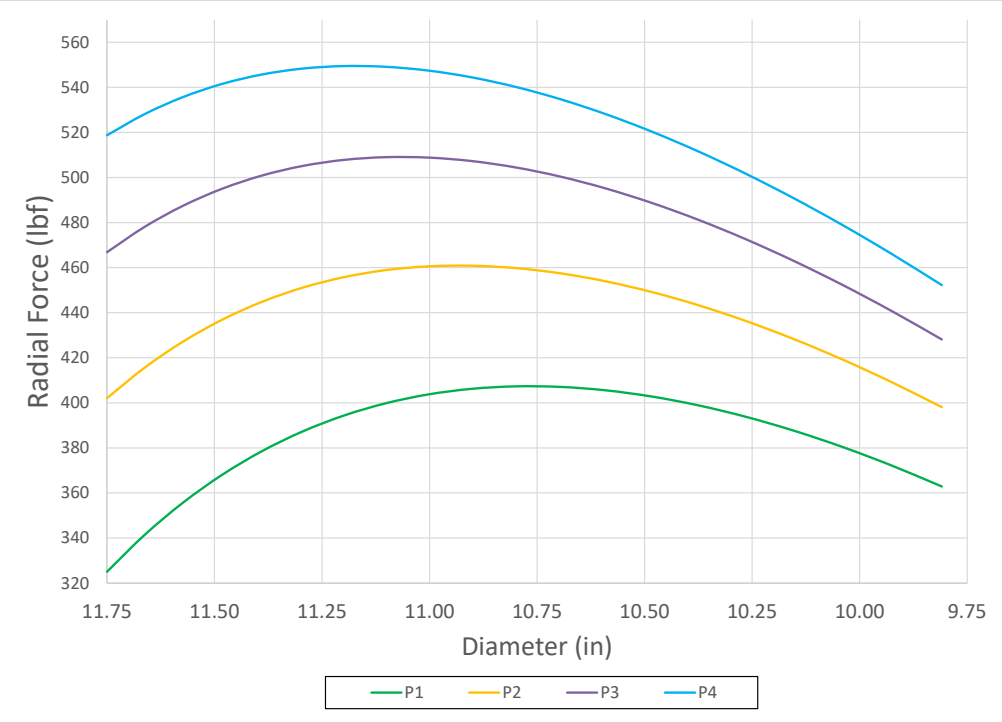
PRECISION CENTRALISERS

TECHNICAL SPECIFICATIONS		
Model	**CP12**	
Weight	45 lbs	
Length	16”	
Volume	0.05ft3	
Maximum OD	11-¾”	
Minimum Hole Size	Open Hole	Cased hole
	10-⅝"	10-⅛"
Collapsed OD	9.8"	
Max Load Carry Capability[1]	500 lbs	
Drag Coefficient, dynamic	5%	
Drag Coefficient, Static	12%	
Temperature rating	400°F	
Pressure rating	30,000 psi	
Taxi Bore[2]	4-½”	

1 Load capacity can be set by adjusting spring pack, this allows to optimize toolstring design.
2 Reducing Adapter sleeves are available to fit 4" and 3-5/8” tools.

MATERIALS	
Body	17-4 PH SS
Bearings	Custom Carbide Bush Bearing
Grease	Lubriplate 930AA
Attachment	Alloy Steel grub Screw , 1/4” hex, UNC Thread, Dog end type
SWL, Shear set screws	8,500 lbs



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PRECISION CENTRALISERS

CP8: Centraliser Co-pivot for 8.5in

DESCRIPTION:

The Co-Pivot Centraliser (CP8) is the latest addition to the FOcus™ range of precision centralisers for open hole. By synergizing Petromac's patented "Co-Pivot" mechanism with our ultra-low-drag custom bearings, the CP8 delivers unparalleled performance.

The CP8 centraliser boasts robust strength and ensures precise centralization of heavy tool-strings in challenging conditions. Unlike conventional centralizers, our device reduces stick-slip and facilitates smooth gravity descent in high deviation wells.

APPLICATION:

- Centering Sonics and imagging tools in 8.5" wellbores
- Stick-slip elimination
- Conveyance of heavy toolstrings.

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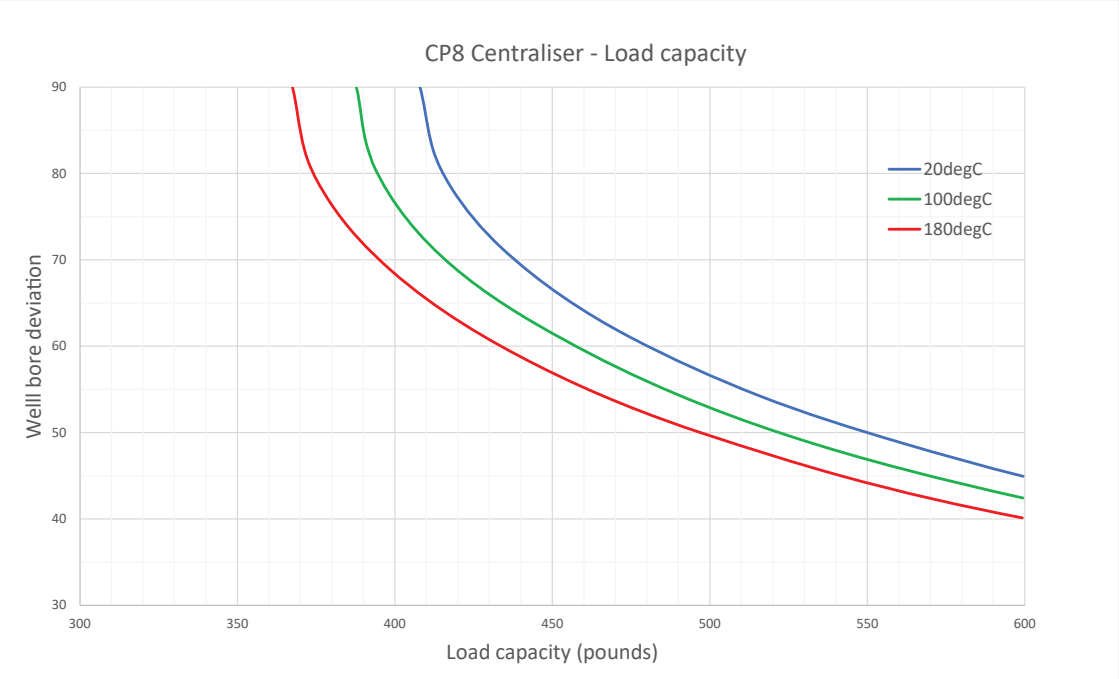
PRECISION CENTRALISERS

TECHNICAL SPECIFICATIONS		
Model	**CP8**	
Weight	39 lbs	
Length	19”	
Volume	0.03ft3	
Maximum OD[1]	8.25”	
Minimum Hole Size	Open Hole	Cased Hole
	8"	7-½"
Collapsed OD[2]	7-½"	
Max Load Carry Capability[3]	350 lbs	
Drag Coefficient, dynamic	5%	
Drag Coefficient, Static	12%	
Temperature rating	400°F	
Pressure rating	30,000 psi	
Taxi Bore[4]	3-⅝”	

1 Max OD can be increased to 8.8", this must be done at surface by changing position of the "OD selector stop".
2 Collapse OD is dependent of tool diameter, collapse OD is 7.25" for a 3-3⁄8" Tool OD.
3 Load carrying capacity is deviation and temperature dependent, see chart below..
4 Reducing adapter sleeves are available to fit 3-3/8” tools.

MATERIALS	
Body	17-4 PH SS, Heat treated H1150
Bearings	Custom Bush Bearing
Grease	Lubriplate 930AA
Attachment	Alloy Steel grub Screw , 1/4” hex, UNC Thread, Dog end type
SWL, Shear set screws	17,000 lbs (4 screws)



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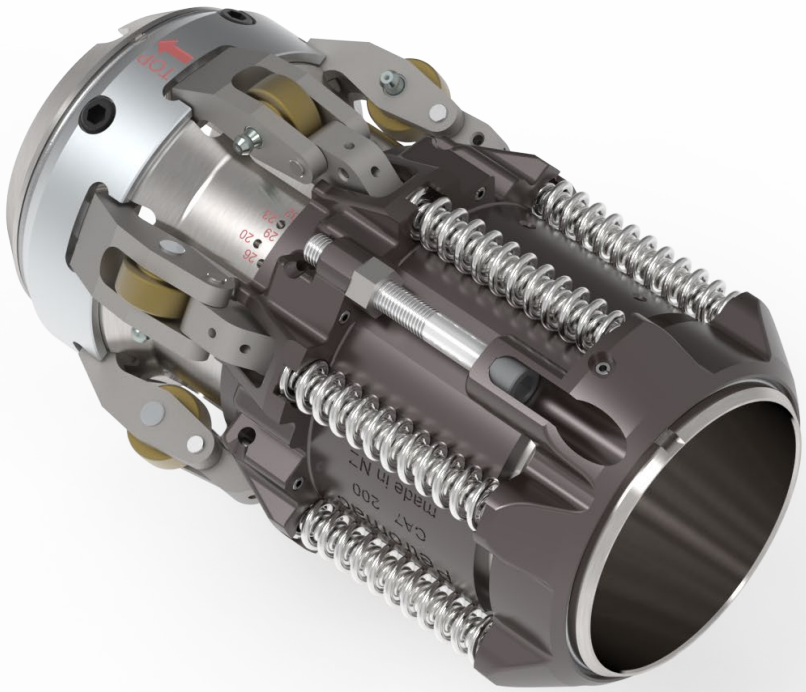
PRECISION CENTRALISERS

CENTRALISERS - CASED HOLE

CA7 - Centering Adjustable Taxi for 7in



DESCRIPTION:

The CA7 is a slip over Roller with a 3-5/8" bore designed to centre wireline tools across the range of 7" casings.

A ground-up analysis of centralization mechanics and current logging applications led to the revolutionary architecture of the CA7.

Despite the compact design (9.7" /13lbs) the device has the capability to centralise 260lbf in a horizontal well. In deviated wells this high load capacity is very important. Note that at only 50deg deviation a centraliser must support 77% of toolstring weight. The CA7 can be placed between the Transmitter and Receiver on Sonic Logging tools, exactly where centralization is required.

The maximum diameter of the device can be easily pre-set by the user to suit casing weight. Once set, the rollers will keep this maximum OD. This feature prevents toolstring hold-up at casing joints or the BOP stack. It also ensures that the load carried by the wheels, and thus bearing friction, is only that required to support the toolstring with no additional loads due to centraliser spring force

In addition, the CA7 can collapse to its minimum designed diameter to enable the toolstring to pass through restrictions such as a cement sheath.

The CA7 incorporates Petromac's unique bearing technology which has enabled our family of devices to descent by gravity to world record deviations[1].

Petromac's recommends setting the device OD to "Casing Drift", within 0.07in of casing centreline. Casing weights are annotated on the device for ease of adjustment

APPLICATION:

- Centralization of wireline logging tools
- Tool Conveyance on highly deviated wells[2]

1 Paper# 21206, International Petroleum Technology Conference 2021
2 Inside the designed range of operation

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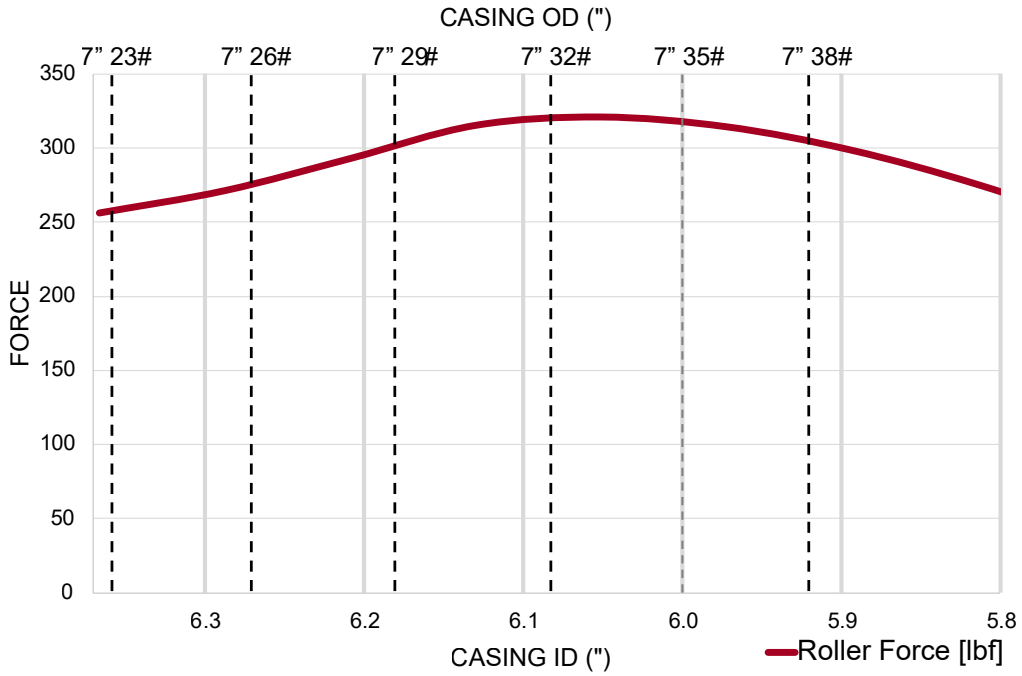
TECHNICAL SPECIFICATIONS		
Model	**CA7**	
Weight	15 lbs	
Length	9.7”	
Volume	0.03ft3	
	Min. Casing Size	Max. Casing size
Adjustable Casing Range	7”-32# (ID6.09”)	7”-23# (ID 6.36”)
Max Load Carry Capability	260 lbs	
Drag Coefficient, dynamic	3%	
Drag Force	6 lbs	
Temperature rating	400°F	
Pressure rating	30,000 psi	
Collapsed OD	5.66”	
Taxi Bore[1]	3-⅝”	

1 Reducing Adapter sleeves are available to fit 3-3/8” tools.

MATERIALS	
Body	17-4 PH SS, Heat treated H1075
Bearings	Custom Bush Bearing
Grease	Lubriplate 930AA
Attachment	Alloy Steel grub Screw , 1/4” hex, UNC Thread, Dog end type
SWL, Shear set screws	8,500 lbs



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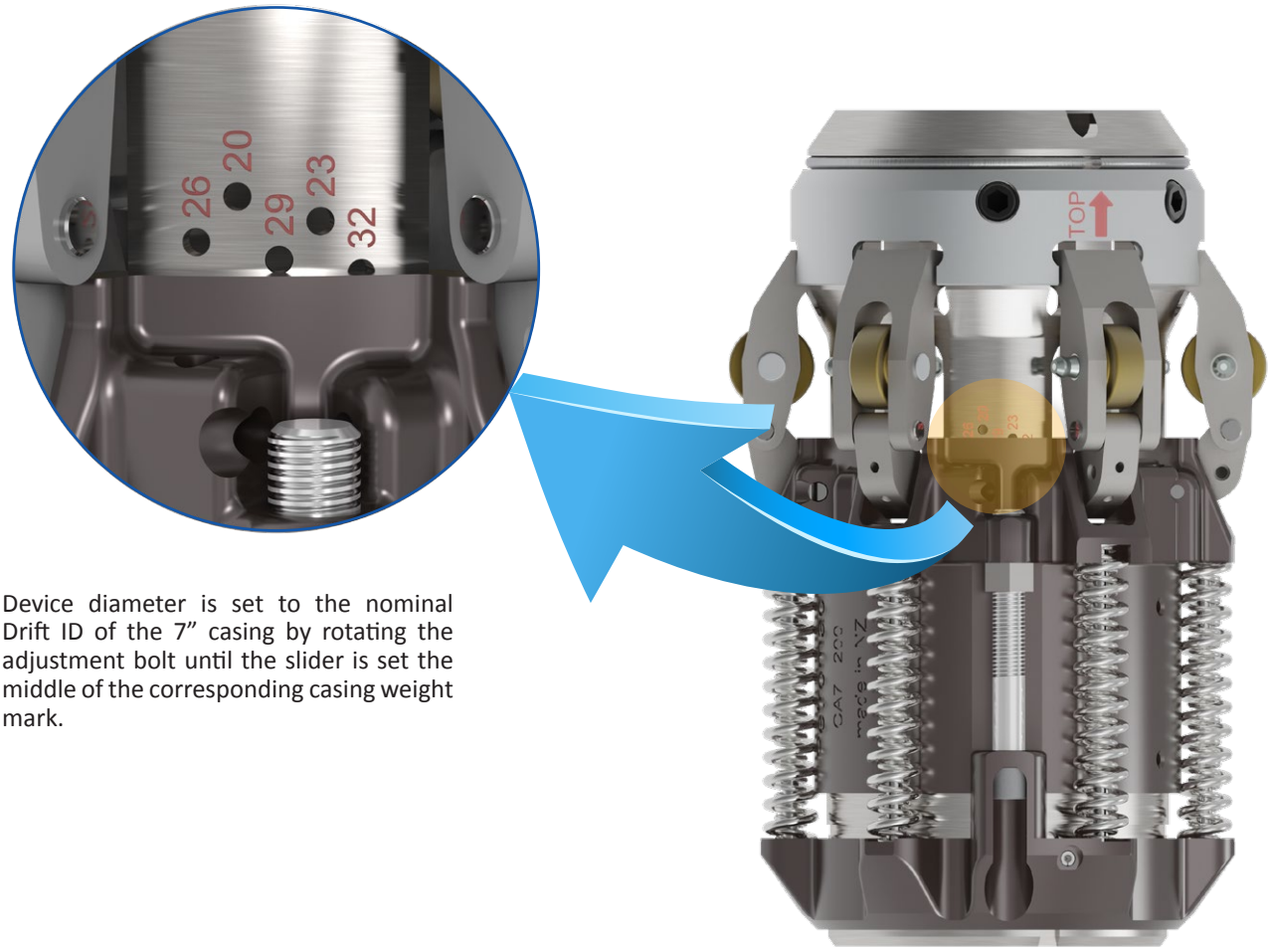
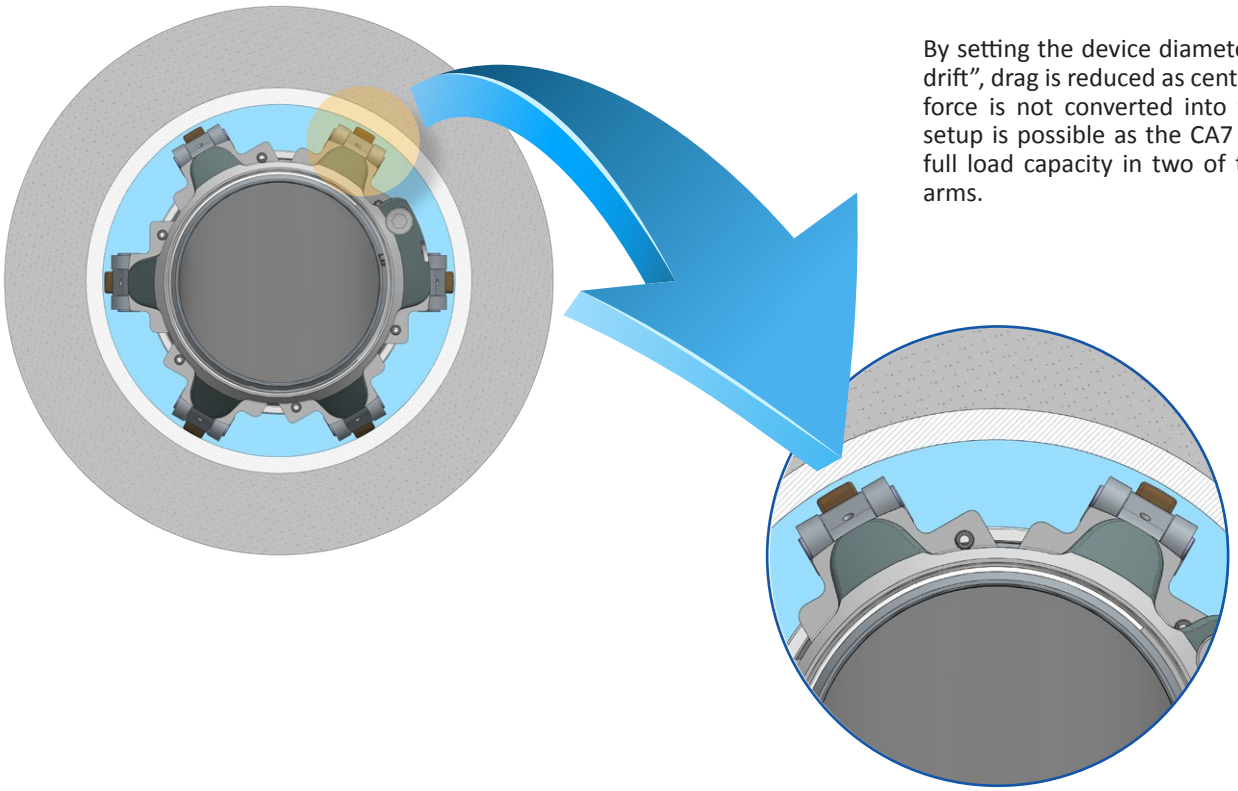
PRECISION CENTRALISERS



Device diameter is set to the nominal Drift ID of the 7” casing by rotating the adjustment bolt until the slider is set the middle of the corresponding casing weight mark.



By setting the device diameter to “Casing drift”, drag is reduced as centraliser spring force is not converted into friction. This setup is possible as the CA7 can carry its full load capacity in two of the six roller arms.

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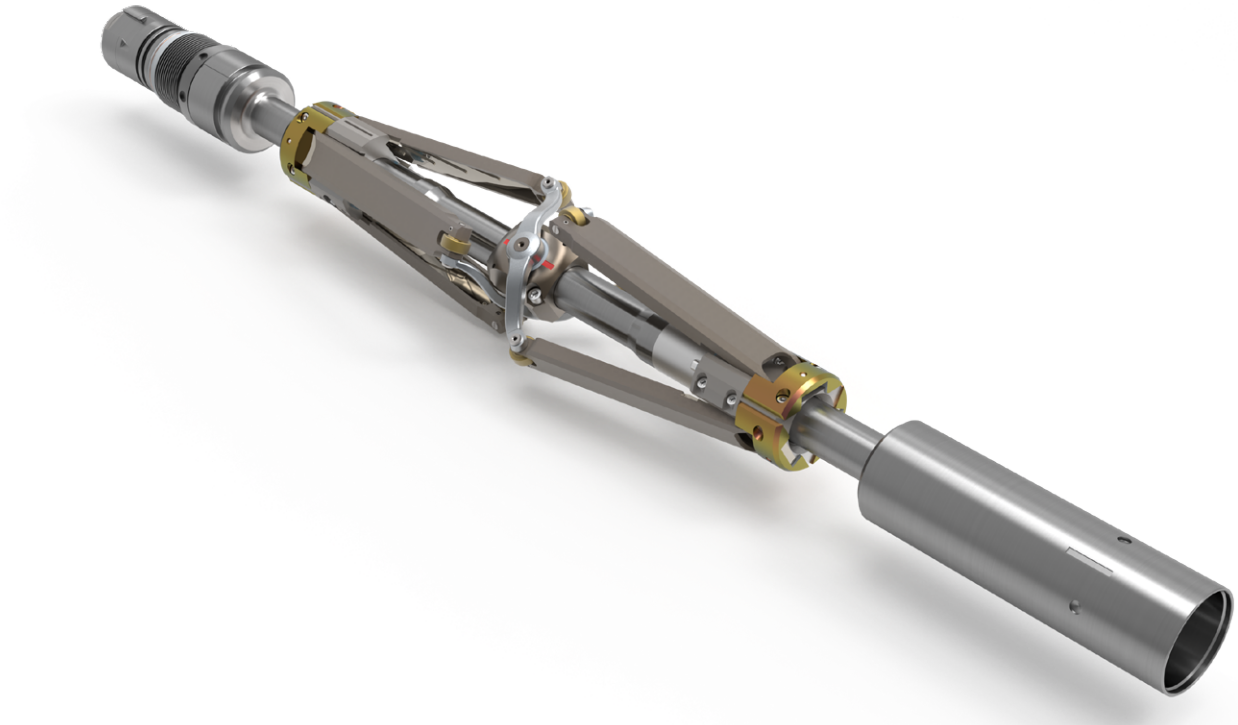
PRECISION CENTRALISERS

CRIL: Centraliser Rocker In-Line



DESCRIPTION:

A ground-up analysis of centraliser mechanics and current logging applications led to Petromac's revolutionary "Rocker" centraliser for cased hole service.

The patented Rocker centraliser incorporates a rocker in each of the arm assemblies which pivots about the centreline. The rocker wheels contact opposing sides of the casing ensuring perfect centralization.

The CRIL (Centraliser Rocker In-Line) is designed for in-line connection within the tool string.

This tool incorporates Petromac's unique bearing technology which has enabled our family of devices to descent by gravity to world record deviations

APPLICATION:

- Centralization of wireline logging tools
- Tool Conveyance on highly deviated wells

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PRECISION CENTRALISERS

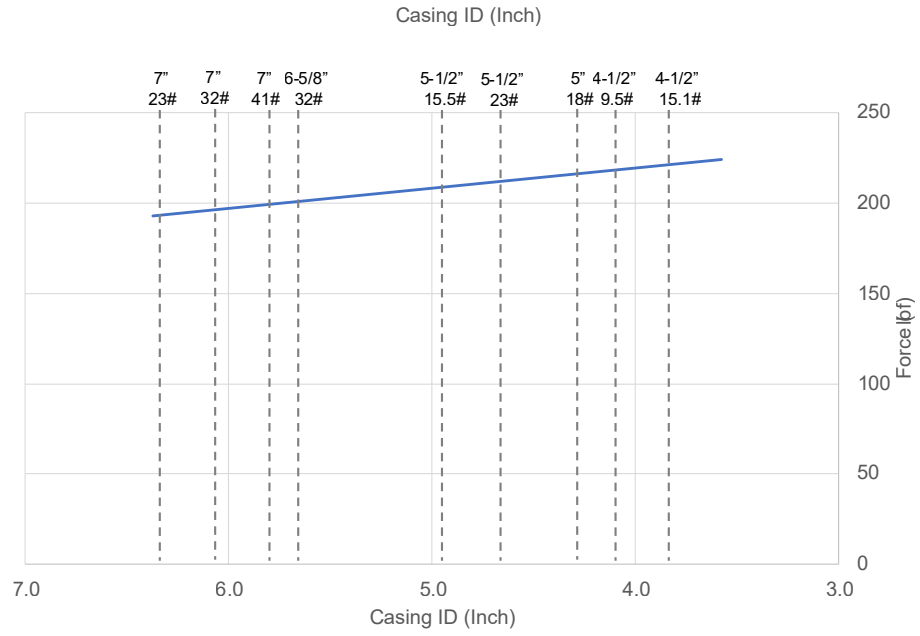
The CRIL Rocker centraliser is configured for centralization in 4.5” to 7” casing sizes and is available in two size configurations, standard and small:

- 4-1/2”to 7” with a collapse diameter of 3-5/8” (1” wheel)
- 4-1/2”to 7” with a collapse diameter of 3-3/8” (7/8” wheel).

TECHNICAL SPECIFICATIONS		
Model	**CRIL**	
Weight	65 lbs [29.5 kg]	
Length	3.74ft [1.14m]	
Volume	0.11ft3	
Configurations	**Small Kit**	**Standard**
Min. Casing size	4-½”	4-½”
Max. Casing size	7”	7”
Minimum OD	3-⅜”	3-⅝”
Connection[1]	In-Line with all through wired tools	
Max Load Carry Capability	200 lbs	
Drag Coefficient, dynamic	2%	
Drag Force	6 lbs	
Temperature rating	350°F	
Pressure rating	20,000 psi	

1 Fits threaded connections for 31 pins on 3-3/8” and 3-5/8” tools.

MATERIALS	
Body	17-4 PH SS
Bearings	Custom Bush Bearing
Grease	Lubriplate 930AA
Tensile SWL, For fishing	30,000 lbs



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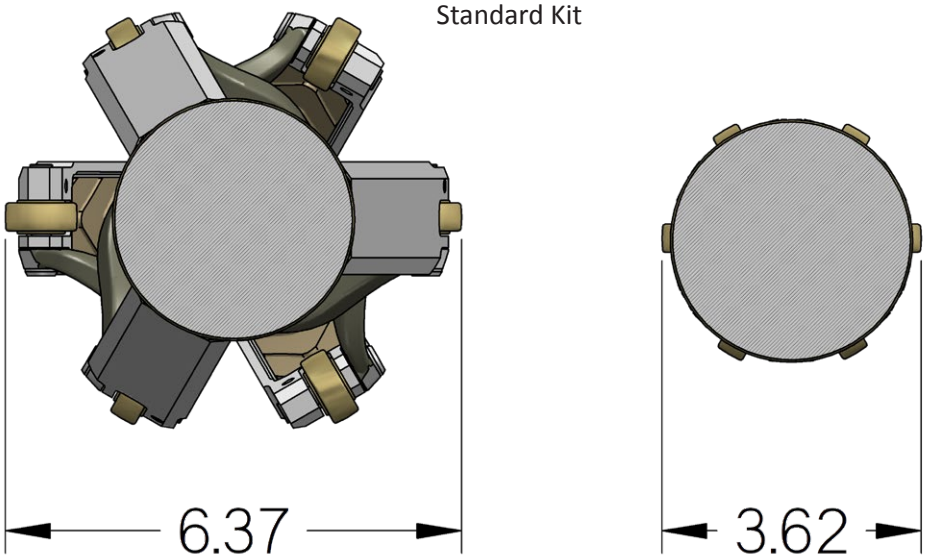
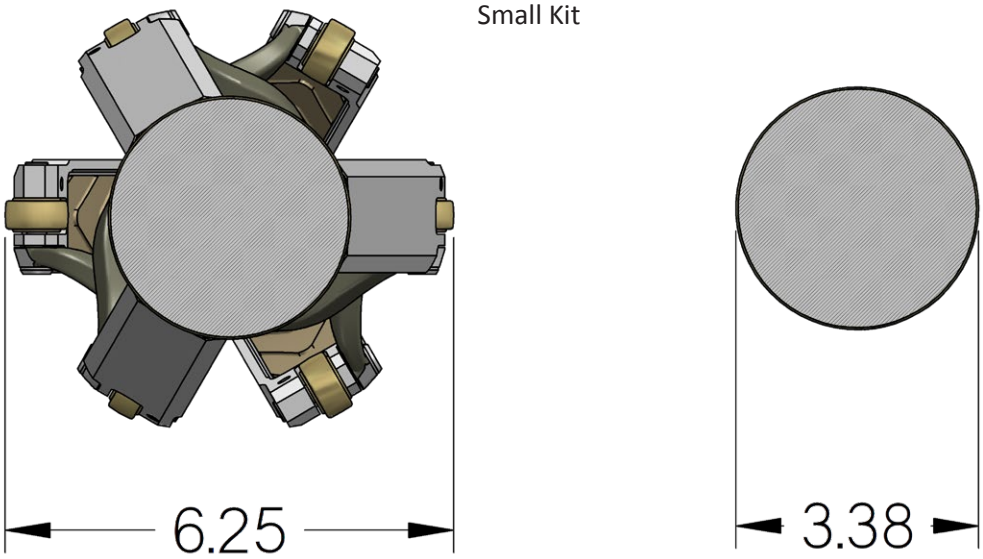
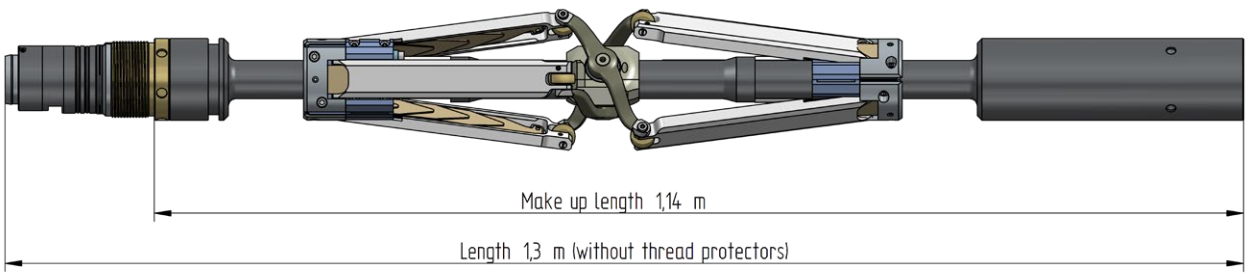
Standard Kit



Small Kit





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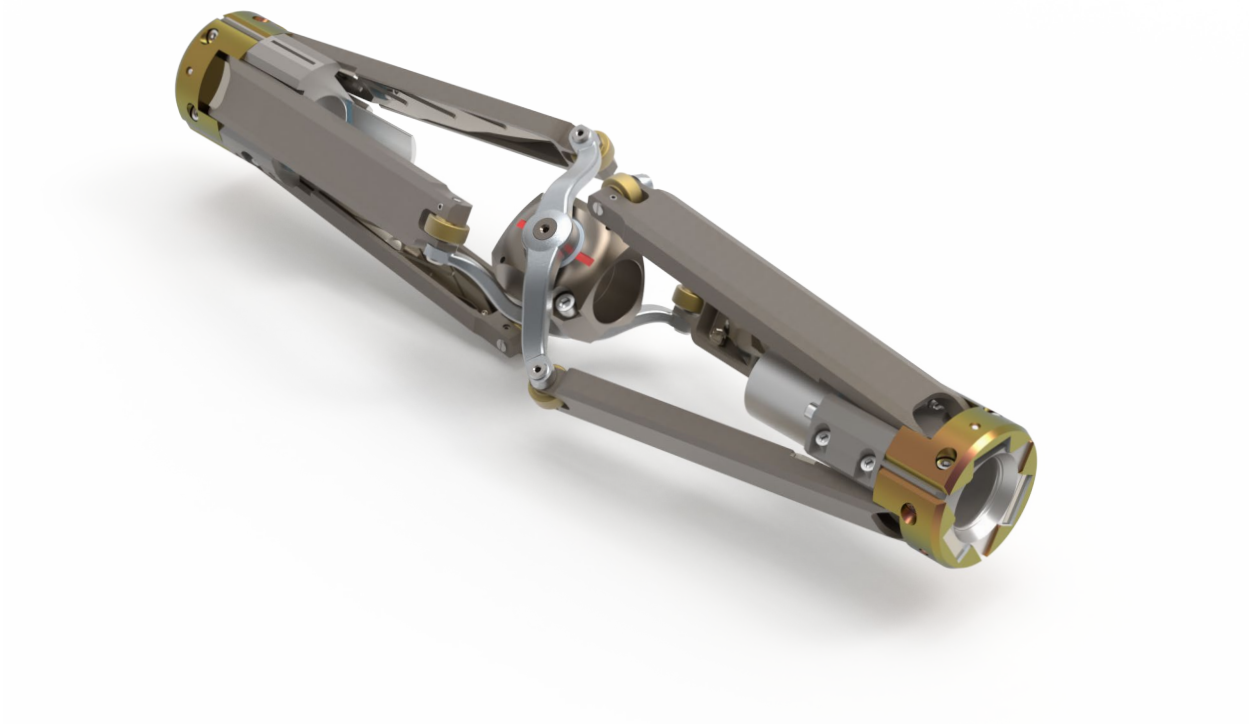
PRECISION CENTRALISERS

CRU: Centraliser Rocker for USIT



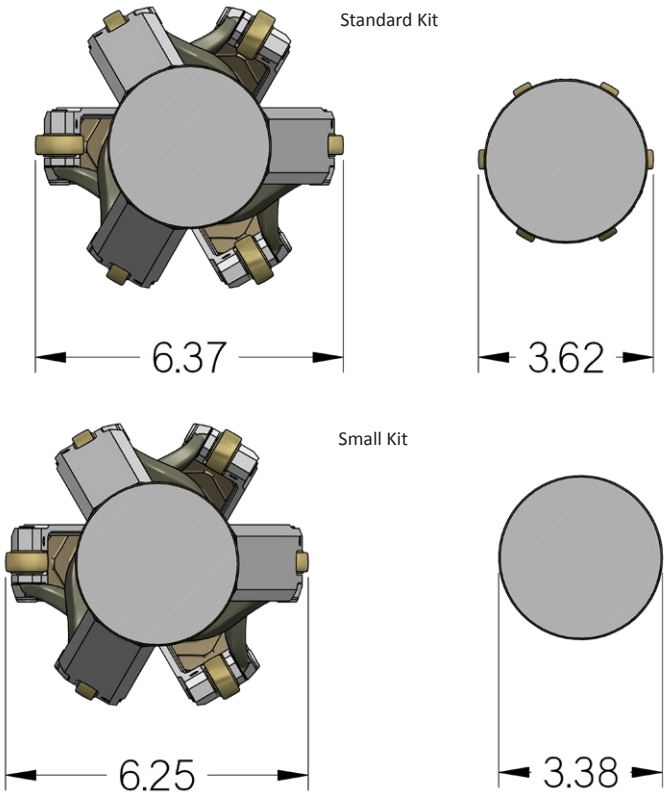
DESCRIPTION:

A ground-up analysis of centraliser mechanics and current logging applications led to Petromac's revolutionary "Rocker" centraliser for cased hole service.

The patented Rocker centraliser incorporates a rocker in each of the arm assemblies which pivots about the centreline. The rocker wheels contact opposing sides of the casing ensuring perfect centralisation.

The CRU (Centraliser Rocker Ultrasonic imaging tool) is designed for assembly directly on the USIS sonde.

The CRU incorporates Petromac's unique bearing technology which has enabled our family of devices to descent by gravity to world record deviations



APPLICATION:

- Centralization of wireline logging tools
- Tool Conveyance on highly deviated wells

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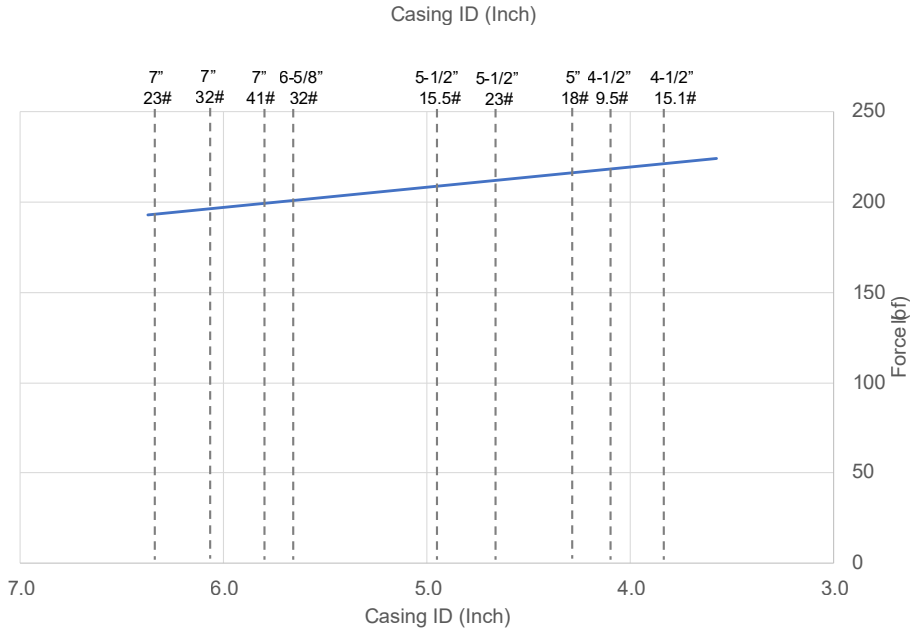
PRECISION CENTRALISERS

The CRU Rocker centraliser is configured for centralization in 4.5” to 7” casing sizes and is available in two size configurations, standard and small:

- 4-1/2”to 7” with a collapse diameter of 3-5/8” (1” wheel)
- 4-1/2”to 7” with a collapse diameter of 3-3/8” (7/8” wheel).

TECHNICAL SPECIFICATIONS		
Model	**CRU**	
Weight	23 lbs [10.5 kg]	
Length	NA – assembled to USIS Sonde	
Volume	0.05ft3	
Configuration	**Small kit**	**Standard**
Min. Casing size	4-1/2”	4-1/2”
Max. Casing size	7”	7”
Minimum OD	3-⅜”	3-⅝”
Max Load Carry Capability	200 lbs	
Drag Coefficient, dynamic	2%	
Drag Force	6 lbs	
Temperature rating	400°F	
Pressure rating	30,000 psi	

MATERIALS	
Body	17-4 PH SS, Heat treated H1075
Bearings	Custom Bush Bearing
Grease	Lubriplate 930AA



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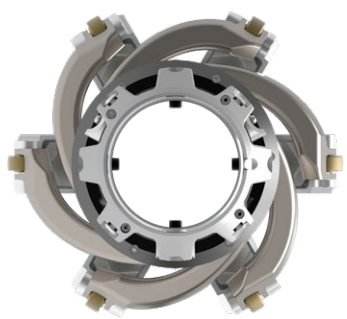
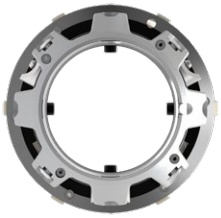
PRECISION CENTRALISERS

CX9: Helix Centraliser





DESCRIPTION:

The HELIX Centralizer (CX9) is the latest addition to the FOcus™ range of precision centralisers. By synergizing Petromac's patented "Helix" mechanism with our ultra-low-drag custom bearings, the CX9 delivers unparalleled performance.

The Helix centraliser boasts robust strength and ensures precise centralization of heavy tool-strings in challenging conditions. Unlike conventional centralizers, the CX9 reduces stick-slip and facilitates smooth gravity descent in high deviation wells.

Designed for casing sizes ranging from 7" up to 9-5/8", the Helix centraliser enables data acquisition in a single run, saving valuable rig time.

APPLICATION:

- Precise centralisation of wireline logging tools in casings from 7" to 9-5/8"
- Gravity descent in highly deviated wells
- Stick-slip elimination

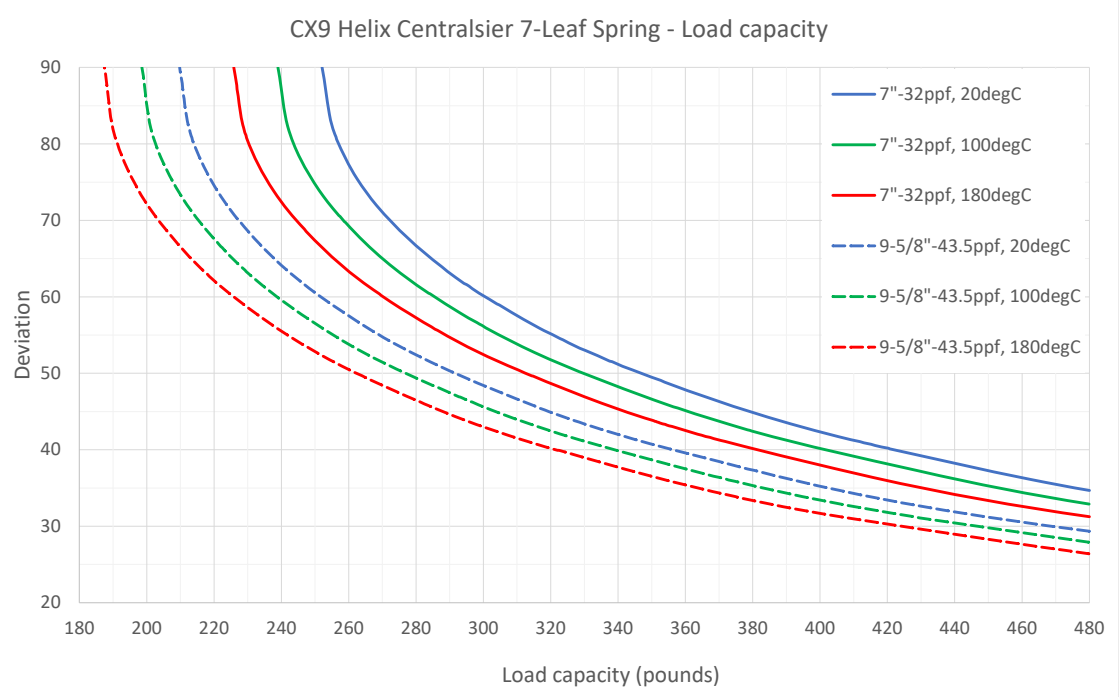
Petromac

FOCUS
PRECISION CENTRALISERS

TECHNICAL SPECIFICATIONS		
Model	**CX9**	
Weight	40 lbs	
Length	25” (0.64m)	
Volume	0.08ft3	
	Min. Casing Size	Max. Casing size
Adjustable Casing Range	7”- #38 (ID 5.92”)	9-⅝”- #32.3 (ID 9.00”)
Load carry capability range[1]	190 - 225 lbs	
Drag Coefficient, dynamic	3%	
Drag Force	6 lbs	
Temperature rating	400°F	
Pressure rating	30,000 psi	
Collapsed OD	5-⅝”	
Taxi Bore[2]	3-⅝”	

1 . Capability is dependent on temperature and Casing ID, values above are based on the most demanding scenarios: 90 deg deviation @ 180 °C . For 7" #32 force is 225lbs and 190lbs for 9-⅝" #53.5.
2 Reducing Adapter sleeves are available to fit 3-3/8” tools.

MATERIALS	
Body	17-4 PH SS, Heat treated H1075
Bearings	Custom Bush Bearing
Grease	Lubriplate 930AA
Attachment	Alloy Steel grub Screw , 1/4” hex, UNC Thread, Dog end type
SWL, Shear set screws	17,000 lbs



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FOCUS PRECISION CENTRALISERS

WELL INTERVENTION ACCESSORIES

RS7 - Roller Standoff for 7in

DESCRIPTION:

The RS7 is a slip over Roller with a 3-5/8" bore designed to convey tools across the range of 7" casings.

Ideal to complement the conveyance solution provided by the Petromac cased hole centralisers, it is positioned in the decoupled sections of the toolstring where centralization is not critical allowing for an optimal use of fit to purpose devices.

Compact design at 3.5lbs and 3" long with 5.8" Max OD.

APPLICATION:

- Centralization of wireline logging tools
- Tool Conveyance on highly deviated wells

TECHNICAL SPECIFICATIONS	
Model	RS7
Weight	3.5 lbs
Length	3"
Volume	0.01ft3
Drag Coefficient, dynamic	3%
Drag Coefficient, Static	5%
Temperature rating	400°F
Pressure rating	30,000 psi
Device OD	5.8"
Minimum casing size	7" #32 (ID6.094")
Bore	3-⅝"

MATERIALS	
Body	17-4 PH SS
Bearings	Custom Bush Bearing
Grease	Lubriplate 930AA
Attachment	Alloy Steel grub Screw , 1/4" hex, UNC Thread, Dog end type
SWL, Shear set screws	8,500 lbs

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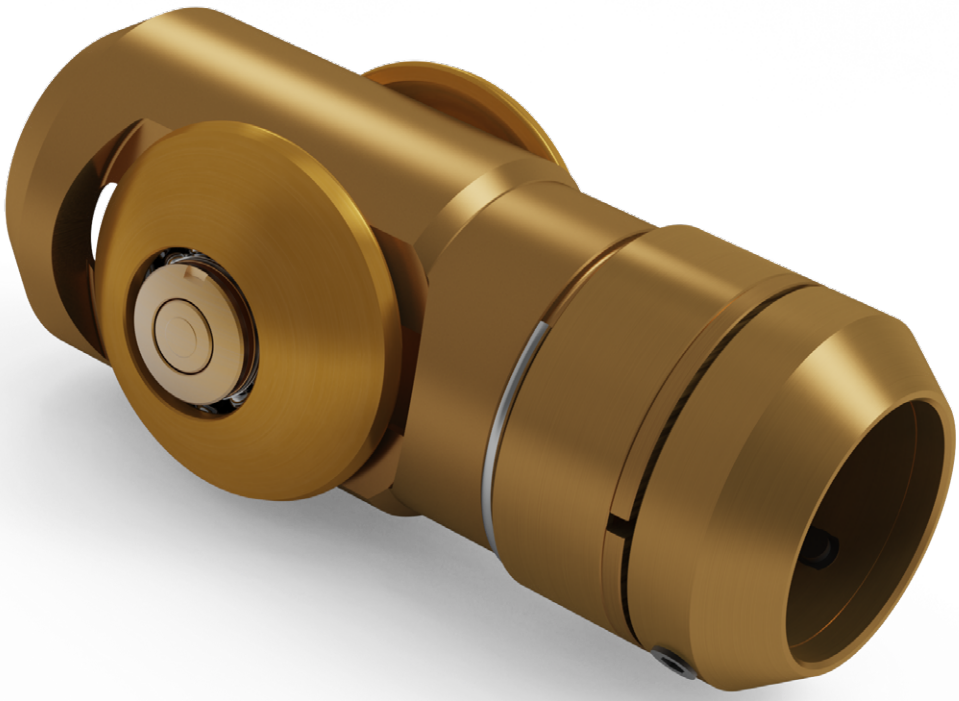
RO17: Roller Slip over 1-$^{11}/_{16}$”



DESCRIPTION:

The Slip over Roller for CH is used to convey 1 11/16” tools down cased hole wells with completion systems that have a minimum restriction greater than 3 ½”.

Carriage Collar locks securely onto the tool housing with grub cup screws while allowing the taxi body to rotate freely around the tool axis, this enables the string to setup on an orientation where all tool weight is being carried by the wheels, reducing friction and allowing descent up to 80° deviation.

APPLICATION:

- Gravity logging up to 85° well deviation
- Tool Conveyance on highly deviated wells

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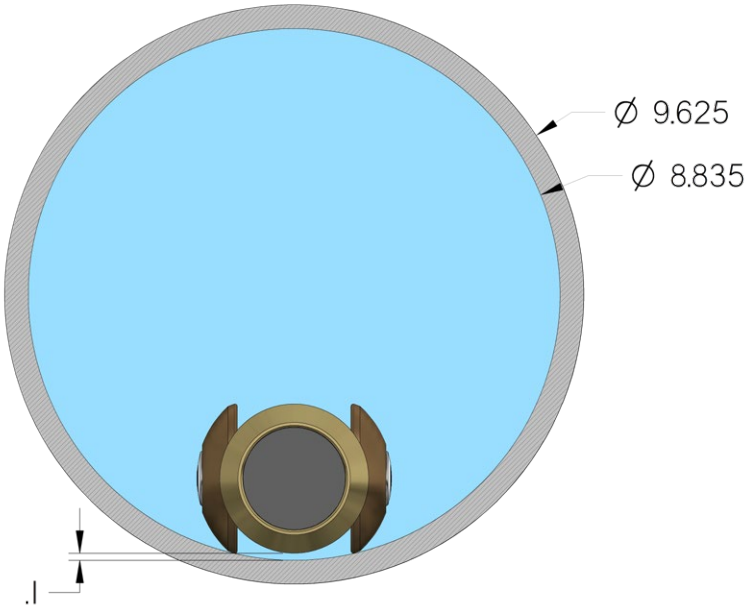
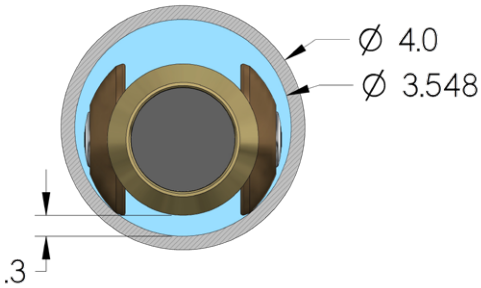
TECHNICAL SPECIFICATIONS	
Model	**RO17**
Weight	4.2 lbs
Length	6.25”
Volume	0.01ft3
Min. Hole Size	3-½”
Max. Hole Size	8-½”
Drag Coefficient, dynamic	2%
Taxi OD	3-¼”
Taxi Bore	1-$^{11}/_{16}$”
Temperature rating	400°F
Pressure rating	30,000 psi

MATERIALS	
Body	17-4 PH SS, Heat treated H1075
Bearings	Custom Ball Bearing
Attachment	Alloy Steel Grub Cup Screw
Grease	Lubriplate 930AA
SWL for Fishing	50,000lbs
SWL Shear Set Screws	4,000lbs

OD9-5/8" ID8.835" 40#



OD4" ID3.548" 11#



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WIRELINE EXPRESS

Taxi Weight Bar (TITAN) - Model TWT-28

DESCRIPTION:

In-line Tool Taxis specifically designed for cased hole operations with Hunting Titan weight bars. Carries the majority of the weight of production logging tool-strings on wheels.

Taxi wheels run on ball bearings with replaceable viton seals. The bearings are packed with grease with new seals between operations.

The weight bar taxi connects in-line between Titan weight bars.

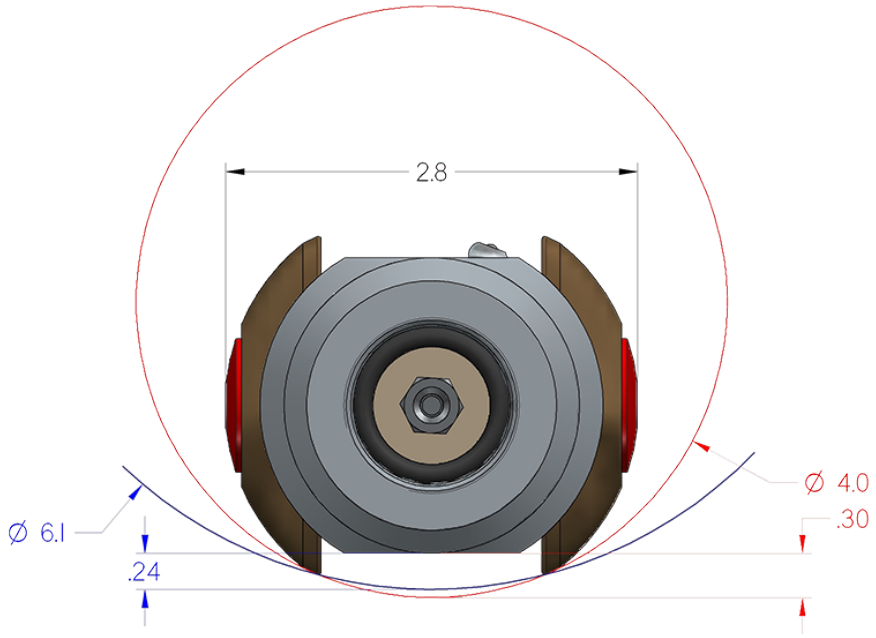
APPLICATION:

- Gravity logging up to 80 degrees well deviation.
- Self-aligning. The wheel body is free to rotate amount the central mandrel.
- Cable tension reduction.
- Rated for perforating operations.
- NACE compliant version available.
- Very Robust design. Low maintenance requirement.
    1. Power wash bearings
    2. Pack bearing with grease
    3. Replace seal

Petromac

TECHNICAL SPECIFICATIONS	
Model	**TWT-28**
Weight	7.7 lbs
Make up Length	8.25”
Volume	0.01ft3
Min. Restriction Size	2.925”
Max. Hole Size	12-½”
Drag Coefficient, dynamic	2%
Taxi OD	2.8”
Taxi connection	Titan, 1-3⁄16"-12 GO
Temperature rating	400°F
Pressure rating	20,000 psi
SWL for fishing, Tensile	63,000 lbs
	Standoff (2" weight bar)
4-1/2" #10.5 Tubing, ID 4.0"	0.30"
7" #32 Casing, ID 6.1"	0.24"

MATERIALS	
Body	17-4 PH SS, Heat treated H1075
Bearings	Custom Ball Bearing
Lubrication	Lubriplate 930AA
Attachment	In-line



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WIRELINE EXPRESS

Taxi Weight Bar - Model TWS-30

DESCRIPTION:

In-line Tool Taxis specifically designed for cased hole operations with SLB weight bars. Carries the majority of the weight of production logging tool-strings on wheels.

Taxi wheels run on ball bearings with replaceable viton seals. The bearings are packed with grease with new seals between operations.

The weight bar taxi connects in-line between weight bars.

APPLICATION:

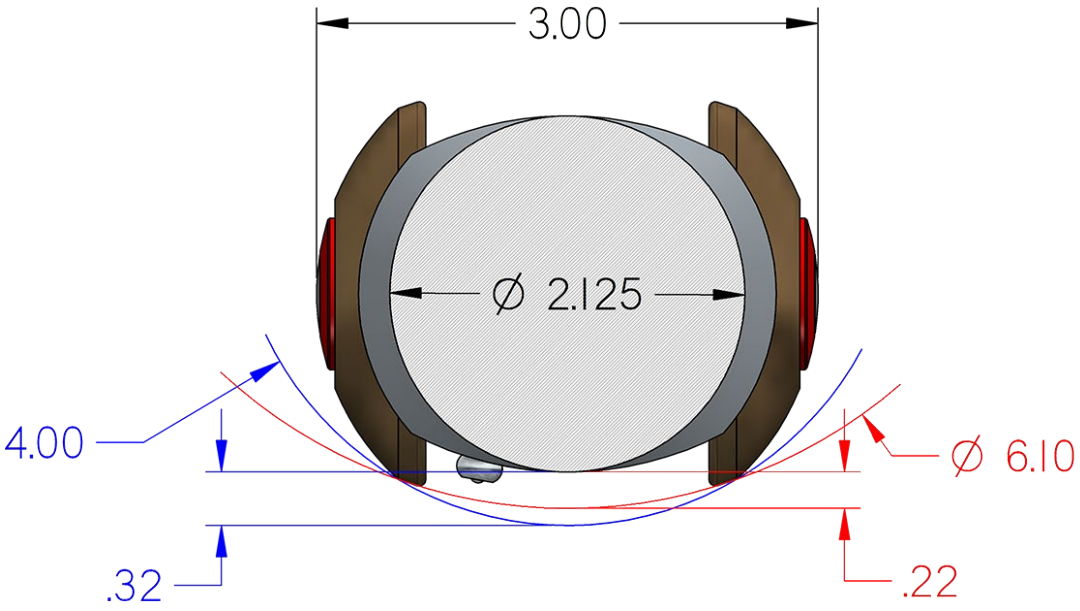
- Gravity logging up to 80 degrees well deviation.
- Self-aligning. The wheel body is free to rotate amount the central mandrel.
- Cable tension reduction.
- Rated for perforating operations.
- NACE (H_2S) compliant version available.
- Very Robust design. Low maintenance requirement.
    1. Power wash bearings
    2. Pack bearing with grease
    3. Replace seal

Petromac

WIRELINE EXPRESS

TECHNICAL SPECIFICATIONS	
Model	**TWS-30**
Weight	7.7 lbs
Make up Length	8.25”
Volume	0.01ft3
Min. Restriction Size	3- ⅛"
Max. Hole Size	12-½”
Drag Coefficient, dynamic	2%
Taxi OD	3.0”
Taxi connection	1 ⅜"-12 UNF
Temperature rating	350°F
Pressure rating	20,000 psi
SWL for fishing, Tensile	63,000 lbs
	Standoff (2- ⅛" weight bar)
4-1/2" #10.5 Tubing, ID 4.0"	0.3"
7" #32 Casing, ID 6.1"	0.2"

MATERIALS	
Body	17-4 PH SS, Heat treated H1075
Bearings	Custom Ball Bearing
Lubrication	Lubriplate 930AA
Attachment	In-line



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