



LEADING  
YOU  
FORWARD

PRODUCT CATALOG



## ELEVATING EFFICIENCY

We define a high performance core drilling product s being consistently manufactured, that increases putting quality core in the box and reduces drilling down time.

At MBI we pride ourselves in offering this to our valued clients.



# ENGINEERS FOCUSED ON RELIABILITY

As clients have access to several interchangeable parts, we strive to push forth on second to none engineering support for our manufacturing team.

Drawings, tolerances, product specifications, are at the basis of our offering to the customers.





# CREDIBILITY THAT DRIVE SUCCESS STORIES

Our team members throughout the organisation are dedicated and proud to service and support the mineral exploration community. Having 23 years of experience and a growing global presence, our customers' trust is the basis in achieving credibility.



# PROVIDING DRILLING PRODUCTS THAT ROCK

Our core drilling solution blends  
world class MBI manufactured  
products complimented by equally  
as good global strategic partners





**IMBI**

PRODUITS DE FORAGE  
DRILLING PRODUCTS

**TEAM**



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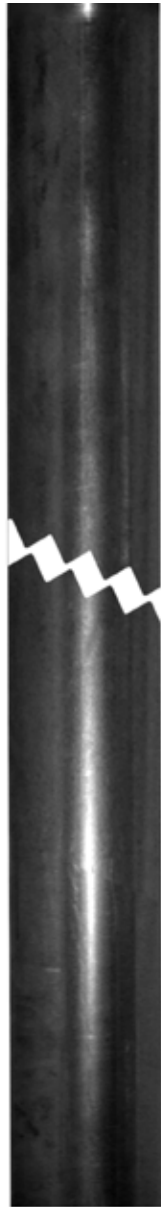


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## We manufacture

MBI Drilling Products flush joint casing and drilling rods are recognized worldwide for their quality. Our rods and casing are threaded by a qualified team with many years of experience in drilling product manufacturing. Each and every rod and casing undergoes strict quality control throughout the entire manufacturing process.





Drill rod complete with coupling



Drill rod coupling

Description	Length	Part No	Weight	
			lb	kg
AW	1'	RAW1001	5.04	2.3
AW	2'	RAW1002	8.76	4.0
AW	3'	RAW1003	11.95	5.4
AW	5'	RAW1005	19.92	9.1
AW	10'	RAW1010	38.92	17.7
BW	1'	RBW1001	8.37	3.8
BW	2'	RBW1002	14.15	6.4
BW	3'	RBW1003	18.99	8.6
BW	5'	RBW1005	31.65	14.4
BW	10'	RBW1010	63.15	28.7
NW	1'	RNW1001	9.20	4.2
NW	2'	RNW1002	18.73	8.5
NW	3'	RNW1003	18.44	8.4
NW	5'	RNW1005	30.73	14.0
NW	10'	RNW1010	56.50	25.7
HW	1'	RHW1001	14.38	6.5
HW	2'	RHW1002	31.65	14.4
HW	3'	RHW1003	42.50	9.6
HW	5'	RHW1005	65.15	16.0
HW	10'	RHW1010	122.80	55.8

## Drill Rod Couplings

Description	Part No
AW	RAW1000
BW	RBW1000
NW	RNW1000
HW	RHW1000



Casing

Description	Length	Part No	Weight	
			lb	kg
BW	2'	CSB1002	14.00	6.4
BW	5'	CSB1005	35.00	15.9
BW	10'	CSB1010	70.00	31.8
NW	2'	CSN1002	17.00	7.7
NW	5'	CSN1005	46.50	19.3
NW	10'	CSN1010	86.00	39.10
HW	2'	CSH1002	21.50	9.75
HW	5'	CSH1005	58.00	26.40
HW	10'	CSH1010	116.50	53.00
HWT	2	CSHWT1202	21.50	9.75
HWT	5'	CSHWT1205	58.00	26.40
HWT	10	CSHWT1210	116.50	53.00
PW	10'	CSP1002	28.50	13.00
PW	5'	CSP1005	70.00	31.80
PW	10'	CSPW1010	144.00	65.50
PWT	2'	CSPWT1202	28.50	13.00
PWT	5'	CSPWT1205	70.00	31.80
PWT	10'	CSPWT1210	144.00	65.50

## Metric

BW	0.60 m	CSB1502	14.00	6.40
BW	1.50 m	CSB1505	35.00	15.90
BW	3.00 m	CSB1510	70.00	31.80
NW	0.60 m	CSN1502	17.00	7.70
NW	1.50 m	CSN1505	42.50	19.30
NW	3.00 m	CSN1510	86.00	39.10
HW	0.60 m	CSH1702	21.50	9.75
HW	1.50 m	CSH1705	57.75	26.30
HW	3.00 m	CSH1710	115.50	52.50
HWT	0.60 m	CSHWT1702	21.50	9.75
HWT	1.50 m	CSHWT1705	57.75	26.30
HWT	3.00 m	CSHWT1710	115.50	52.50
PW	0.60 m	CSP1502	27.50	12.50
PW	1.5 m	CSP1505	69.00	31.40
PW	3.00m	CSPW1510	143.00	65.00
PWT	0.60m	CSPWT1702	28.50	13.00
PWT	1.5m	CSPWT1705	69.00	31.40
PWT	3.0m	CSPWT1710	143.00	65.00



# HEAT TREATED WIRELINE DRILL RODS



Wireline  
drill rod

Description	Length	Part No	Weight	
			lb	kg
B	2'	RB3102	8.00	3.6
B	5'	RB3105	20.00	9.1
B	10'	RB3110	40.00	18.2
N	2'	RN3102	10.50	4.8
N	5'	RN3105	25.00	11.4
N	10'	RN3110	51.00	23.2
H	2'	RH3102	15.50	7.0
H	5'	RH3105	38.50	17.5
H	10'	RH3110	77.00	35.0
HWT	2'	RHWT7202	23.00	10.5
HWT	5'	RHWT7205	58.00	26.4
HWT	10'	RHWT7210	116.50	53

## Metric

B	0.60 m	RB3602	8.00	3.6
B	1.50 m	RB3605	20.00	9.1
B	3.00 m	RB3610	40.00	18.2
N	0.60 m	RN3602	10.50	4.8
N	1.50 m	RN3605	25.00	11.4
N	3.00 m	RN3610	51.00	23.2
H	0.60 m	RH3602	15.20	6.9
H	1.50 m	RH3605	37.80	17.2
H	3.00 m	RH3610	76.00	34.5
HWT	0.60 m	RHWT7702	15.20	6.9
HWT	1.50 m	RHWT7705	57.75	26.3
HWT	3.00 m	RHWT7710	115.50	52.4

Description	Length	Part No	Weight	
			lb	kg
NM	2'	RNM3302	10.50	4.8
NM	5'	RNM3305	25.00	11.4
NM	10'	RNM3310	51.00	23.2
HM	2'	RHM3302	15.50	7.0
HM	5'	RHM3305	38.50	17.5
HM	10'	RHM3310	77.00	35.0

## Metric

NM	0.60 m	RNM3802	10.50	4.8
NM	1.50 m	RNM3805	25.00	11.4
NM	3.00 m	RNM3810	51.00	23.2
HM	0.60 m	RHM3802	15.20	7.0
HM	1.50 m	RHM3805	37.80	17.2
HM	3.00 m	RHM3810	76.00	34.5

# HEAT TREATED WIRELINE DRILL RODS



Description	Length	Part No	Weight	
			lb	kg
BT	2'	RBT5402	8.00	3.6
BT	5'	RBT5405	20.00	9.1
BT	10'	RBT5410	40.00	18.2
NT	2'	RNT5402	10.50	4.8
NT	5'	RNT5405	25.00	11.4
NT	10'	RNT5410	51.00	23.2
HT	2'	RHT5402	15.50	7.0
HT	5'	RHT5405	38.50	17.5
HT	10'	RHT5410	77.00	35.0

## Metric

BT	0.60 m	RBT5902	8.00	3.6
BT	1.50 m	RBT5905	20.00	9.1
BT	3.00 m	RBT5910	40.00	18.2
NT	0.60 m	RNT5902	10.50	4.8
NT	1.50 m	RNT5905	25.00	11.4
NT	3.00 m	RNT5910	51.00	23.2
HT	0.60 m	RHT5902	15.20	6.9
HT	1.50 m	RHT5905	37.80	17.2
HT	3.00 m	RHT5910	76.00	34.5

Description	Length	Part No	Weight	
			lb	kg
BTW	2'	RBTW6102	7.50	3.4
BTW	5'	RBTW6105	17.50	8.0
BTW	10'	RBTW6110	34.50	15.7
NTW	2'	RNTW6102	10.00	4.5
NTW	5'	RNTW6105	25.00	11.4
NTW	10'	RNTW6110	50.00	22.7
HTW	2'	RHTW6102	13.56	6.16
HTW	5'	RHTW6105	33.90	15.4
HTW	10'	RHTW6110	67.80	30.8

## Metric

BTW	0.60 m	RBTW6602	6.80	3.1
BTW	1.50 m	RBTW6605	17.00	7.95
BTW	3.00 m	RBTW6610	34.00	15.5
NTW	0.60 m	RNTW6602	9.80	4.5
NTW	1.50 m	RNTW6605	24.50	11.2
NTW	3.00 m	RNTW6610	49.05	22.3
HTW	0.60 m	RHTW6602	13.53	6.14
HTW	1.50 m	RHTW6605	33.30	15.2
HTW	3.00 m	RHTW6610	66.70	30.3





Description	Length	Chrome or Std	Part No
B	5'	Std	ITB2125
B	10'	Std	ITB2130
B	5'	Chrome	ITB2175
B	10'	Chrome	ITB2180
BTW	5'	Std	ITBTW2325
BTW	10'	Std	ITBTW2330
BTW	5'	Chrome	ITBTW2375
BTW	10'	Chrome	ITBTW2380
N	5'	Std	ITN2125
N	10'	Std	ITN2130
N	5'	Chrome	ITN2175
N	10'	Chrome	ITN2180
N-2	5'	Std	ITN2725
N-2	10'	Std	ITN2730
N-2	5'	Chrome	ITN2775
N-2	10'	Chrome	ITN2780
N-2	10'	Std Extenda	ITN2781
N-2	10'	Chrome	ITN2781CP
NTW	5'	Std	ITNTW2325
NTW	10'	Std	ITNTW2330
NTW	5'	Chrome	ITNTW2375
NTW	10'	Chrome	ITNTW2380
H	5'	Std	ITH2125
H	10'	Std	ITH2130
H	5'	Chrome	ITH2175
H	10'	Chrome	ITH2180
HTW	5'	Std	ITHTW2325
HTW	10'	Std	ITHTW2330
HTW	10'	Chrome	ITHTW2380



Description	Length	Chrome or Std	Part No
B	5'	Std	OTB2145
B	10'	Std	OTB2150
B	5'	Chrome	OTB2185
B	10'	Chrome	OTB2190
BTW	5'	Std	OTBTW2345
BTW	10'	Std	OTBTW2350
BTW	5'	Chrome	OTBTW2385
BTW	10'	Chrome	OTBTW2390
N	5'	Std	OTN2145
N	10'	Std	OTN2150
N	5'	Chrome	OTN2185
N	10'	Chrome	OTN2190
NTW	5'	Std	OTNTW2367
NTW	5'	Chrome	OTNTW2367CP
NTW	10'	Std	OTNTW2368
NTW	10'	Chrome	OTNTW2368CP
H	5'	Std	OTH2145
H	10'	Std	OTH2150
H	5'	Chrome	OTH2185
H	10'	Std	OTH2190
HTW	5'	Std	OTHTW2345
HTW	10'	Std	OTHTW2350
HTW	5'	Chrome	OTHTW2385
HTW	10'	Chrome	OTHTW2390
P	5'	Std	OTP2145
P	5'	Chrome	OTP2185

## LOADING SHEET

Description	Length	Quantity/ bundle	Weight/bundle lb kg	Length (in)	Height (in)	Width (in)
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## WIRELINER

## DRILL RODS

B	10'	19	780	354.1	126	10 1/4	11 5/8
N	10'	19	1 005	456.3	126	13	14 3/4
H	10'	19	1 500	681.0	126	16 1/8	18 1/2
HM	10'	19	1 500	681.0	126	16 1/8	18 1/2
HMC	10'	19	1 200	544.8	126	16 1/8	18 1/2
HW	10'	7	840	381.4	126	16 1/8	18 1/2
P	10'	7	775	351.9	126	13	14 3/4

## Thin Wall

ATW	10'	19	520	236.1	126	8	9 1/2
BTW	10'	19	675	306.5	126	10 5/8	12
NTW	10'	19	980	444.9	126	13 1/2	15 3/8

## CASING

BW	10'	19	1 350	612.4	126	13 1/2	15 3/8
NW	10'	19	1 690	766.6	126	16 1/8	18 1/2
HW	10'	7	840	381.0	126	13	14 3/4
PW	10'	7	1 030	467.2	126	13	14 3/4

## METRIC

## WIRELINER

## DRILL RODS

B	3m	19	780	354.1	126	10 1/4	11 5/8
N	3m	19	985	447.2	126	13	14 3/4
H	3m	19	1 480	671.9	126	16 1/8	18 1/2
HM	3m	19	1 480	671.9	126	16 1/8	18 1/2
HW	3m	7	825	374.6	126	16 1/8	18 1/2
P	3m	7	750	340.5	126	13	14 3/4

## Thin Wall

ATW	3m	19	515	233.8	126	8	9 1/2
BTW	3m	19	665	301.9	126	10 5/8	12
NTW	3m	19	975	442.7	126	13 1/2	15 3/8

## CASING

BW	3m	19	1 340	607.8	126	13 1/2	15 3/8
NW	3m	19	1 680	762.0	126	16 1/8	18 1/2
HW	3m	7	825	374.2	126	13	14 3/4
PW	3m	7	1 025	464.9	126	13	14 3/4

## 20' CONTAINER (Full Load)

Description	Weight/bundle lb kg
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## B Drill Rod

* 56 bundles of 19 (1 064 pieces)	43 400	19 703.6
* packaging	500	227.0
Total Weight	43 900	19 930.6

## N Drill Rod

* 36 bundles of 19 (684 pieces)	35 460	16 098.8
* packaging	500	227.0
Total Weight	35 960	16 325.8

## H Drill Rod

* 25 bundles of 19 (684 pieces)	37 000	16 798.0
* packaging	500	227.0
Total Weight	37 500	17 025.8

## 20' CONTAINER (1/4 to 3/4 Full)

Description	Weight/bundle lb kg
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## HW Drill Rod

* 10 bundles of 19 (190 pieces)	14 800	6 713.1
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<b>HW Casing</b>	<b>500</b>	<b>227.0</b>
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* 24 bundles of 7 (168 pieces)	16 800	7 620.4
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* packaging	500	227.0
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Total Weight	35 100	14 560.6
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## N Drill Rod

* 24 bundles of 19 (456 pieces)	23 640	10 732.6
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## NW Casing

* 10 bundles of 19 (190 pieces)	16 800	7 627.2
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* packaging	500	227.0
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Total Weight	40 940	18 586.8
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#### 20' CONTAINER (Full Load - Mixed)

Description	Weight/bundle	
	lb	kg
<b>BW Drill Rod 3m</b>		
* 27 bundles of 19 (513 pieces)	20 925	9 500.0
<b>N Drill Rod 3m</b>		
* 21 bundles of 19 (399 pieces)	20 685	9 391.0
* packaging	500	227.0
Total Weight	42 110	19 117.8
<b>N Drill Rod 3m</b>		
* 18 bundles of 19 (342 pieces)	17 730	8 049.4
<b>H Drill Rod 3m</b>		
* 15 bundles of 19 (285 pieces)	22 200	10 078.8
* packaging	500	227.0
Total Weight	40 430	18 355.2
<b>HW Drill Rod 10'</b>		
* 36 bundles of 7 (252 pieces)	30 240	13 956.0
* drill parts may be added to complete the load		
* packaging	500	227.0
Total Weight	30 740	13 956.0
<b>P Drill Rod 10'</b>		
* 36 bundles of 7 (252 pieces)	27 900	12 666.6
* drill parts may be added to complete the load		
* packaging	500	227.0
Total Weight	28 400	12 893.6

#### 40' CONTAINER (Full Load)

Description	Weight/bundle	
	lb	kg
<b>HW Drill Rod 3m</b>		
* 68 bundles of 7 (476 pieces)	56 100	25 401.4
* packaging	1 000	454.0
Total Weight	57 100	25 855.4
<b>BW Casing 10'</b>		
* 42 bundles of 19 (798 pieces)	56 700	25 719.0
* packaging	1 000	454.0
Total Weight	57 700	25 173.0
<b>NW Casing 10'</b>		
* 33 bundles of 19 (627 pieces)	55 770	25 297.1
* packaging	1 000	454.0
Total Weight	56 770	25 751.1
<b>HW Casing 10'</b>		
* 67 bundles of 7 (469 pieces)	56 280	25 528.4
* packaging	1 000	454.0
Total Weight	57 280	25 982.4
<b>PW Casing 10'</b>		
* 55 bundles of 7 (385 pieces)	56 650	25 696.3
* packaging	1 000	454.0
Total Weight	57 650	26 150.3
<b>BW Casing 3m</b>		
* 42 bundles of 19 (798 pieces)	56 280	25 528.4
* packaging	1 000	454.0
Total Weight	57 280	25 982.4
<b>NW Casing 3m</b>		
* 33 bundles of 19 (627 pieces)	55 440	25 147.4
* packaging	1 000	454.0
Total Weight	56 440	25 601.4
<b>HW Casing 3m</b>		
* 67 bundles of 7 (469 pieces)	56 100	25 446.8
* packaging	1 000	454.0
Total Weight	57 100	25 900.8
<b>PW Casing 3m</b>		
* 55 bundles of 7 (385 pieces)	56 375	25 571.5
* packaging	1 000	454.0
Total Weight	57 375	26 025.5

#### CONTAINER SIZES

Size	Length	Width	Height
20' Container	18'	7' 6"	7' 6"
40' Container	39'	7' 6"	7' 6"

*Note: Certain restrictions may apply.*



Wireline Core Barrels Surface	1
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## We manufacture

At MBI Drilling Products, we are a leading manufacturer and supplier of drill rigs. We manufacture and resell all consumable parts for head assemblies and core barrels, sizes A to P.

MBI's down-the-hole drilling products are recognized worldwide for their quality and durability. We proudly provide our clients with the best products at highly competitive prices.



We manufacture and resell all the consumable parts for the head assemblies and the core barrels from A to P.



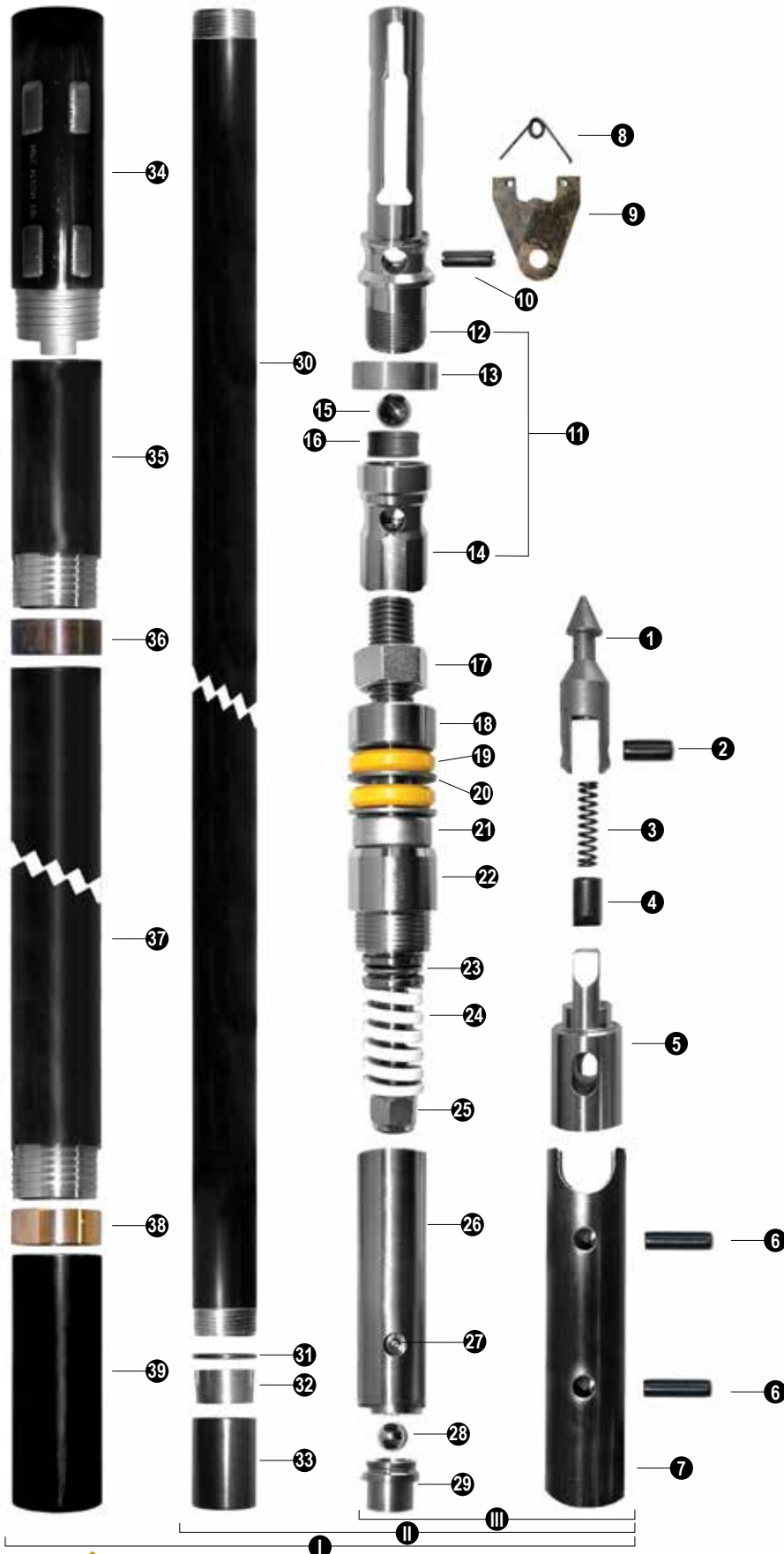
# WIRELINE CORE BARREL SURFACE

«Knuckle Head» Size : B

## ASSEMBLIES

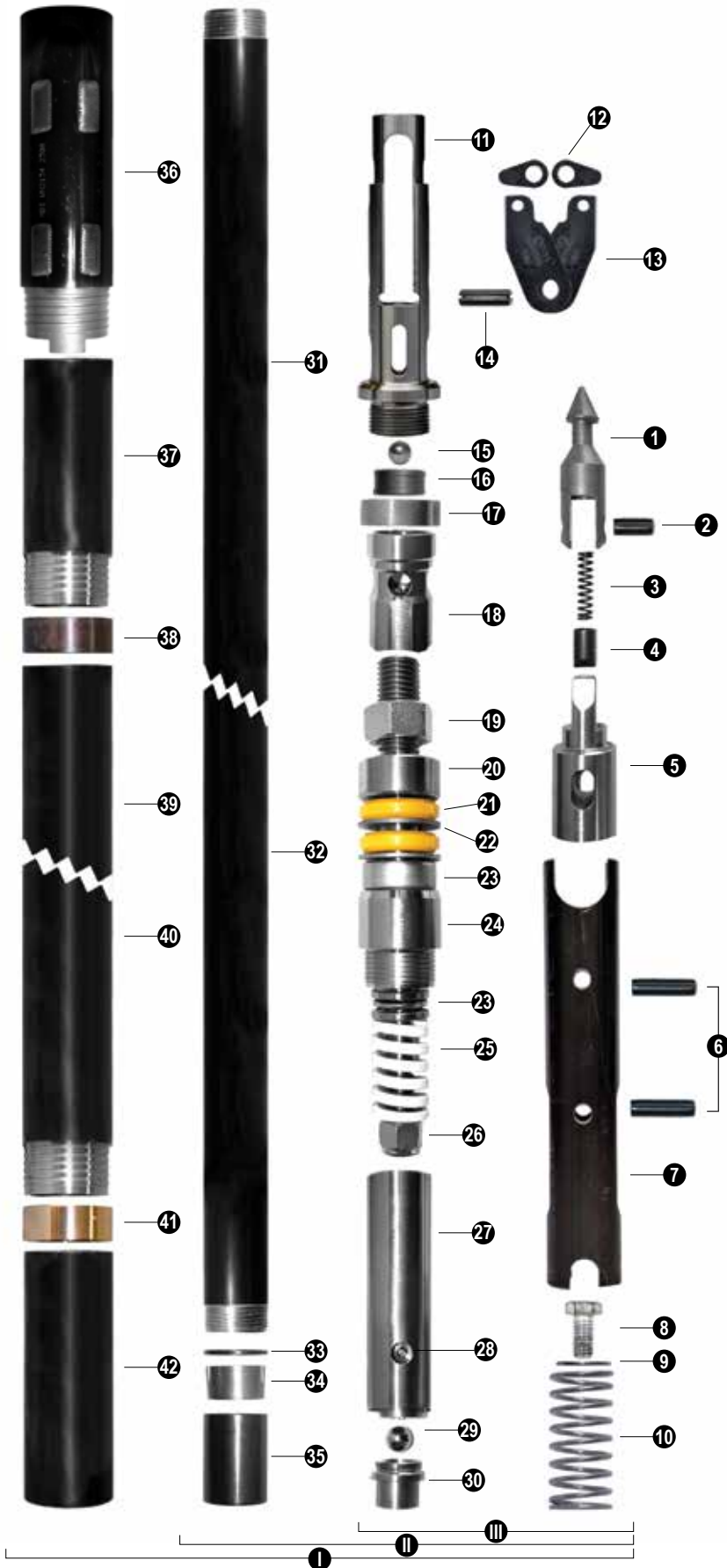
Group	Description	Part No	Weight	
			lb	kg
I	Core Barrel Assy FF 5' 10'	WB0205	54.00	24.5
		WB0210	90.00	40.8
II	Inner Tube Assy FF 5' 10'	WB1205	21.00	9.5
		WB1210	28.00	12.7
III	Head Assy FF	WB2002	11.50	5.2

1	Spearhead point	WBNH2201
2	Spiral pin (7/16" X 1")	WBNH2205
3	Compression spring	WBNH2202
4	Detent plunger	WBNH2203
5	Spearhead base	WB2204
6	Spring pin (2) (3/8" x 1 5/8")	WB2103
7	Latch retracting case	WB2206
8	Latch spring	WB2104
9	Latch (2)	WB2105
10	Spiral pin (3/8" x 1 1/4")	WB2106
11	Latch body assy	WB2909
12	Upper body	WB2909-1
13	Landing shoulder	WB2909-2
14	Lower body	WB2909-3
15	Steel ball 22 mm	WBNH2909-4
16	Landing indicator bushing	WBNH2909-5
17	Lock nut	WB2110
18	Spindel assy	WB2111
19	Shut-off valve (2)	WB2112U
20	Valve adjusting washer (2)	WB2113
21	Ball thrust bearing	WB2114
22	Spindle bearing	WB2115
23	Ball thrust bearing	WB2114
24	Compression spring	WB2116
25	Self lock nut	WB2117
26	Inner tube cap assy FF	WB2119
27	Grease fitting	WB2120
28	Steel ball (3/4")	WB2121
29	Check valve body	WB2123
30	Inner tube 5'	ITB2125
30	Inner tube 10'	ITB2130
31	Stop ring	WB2132
32	Core lifter	WB2133
33	Core lifter case	WB2131
34	Locking coupling standard	WB2134
35	Adaptor coupling	WB2135
36	Landing ring	WB2136
37	Outer tube 5'	OTB2145
37	Outer tube 10'	OTB2150
38	Inner tube stabilizer	WB2139
39	Thread protector	WB2140



# WIRELINE CORE BARREL SURFACE

'Knuckle Head' Size : BLL



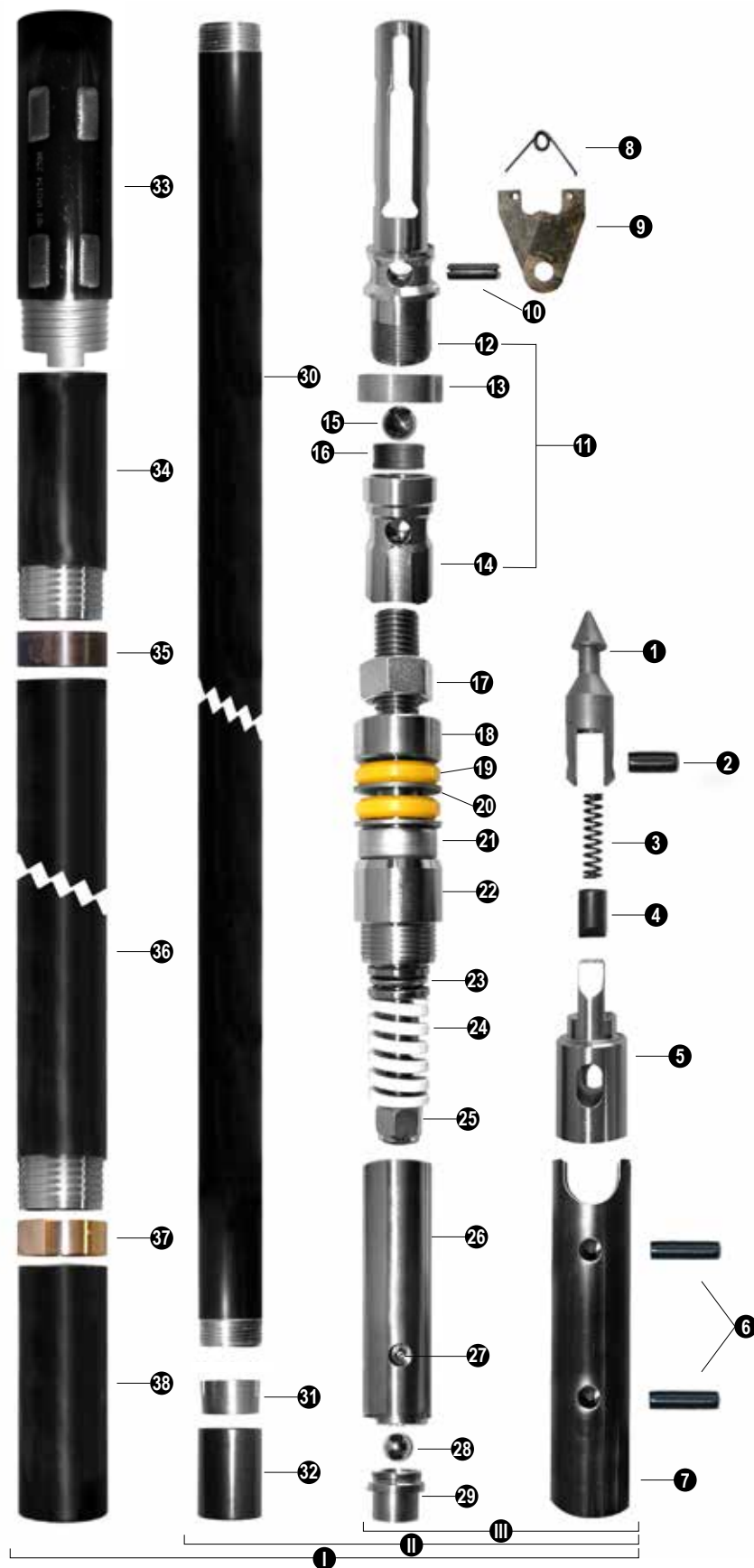
## ASSEMBLIES

Group	Description	Part No	Weight	
			lb	kg
I	Core Barrel Assy FF 1,5m / 5' 3m / 10'	WB0805	54.00	24.5
		WB0810	90.00	40.8
II	Inner Tube Assy FF 1,5m / 5' 3m / 10'	WB1805	21.00	9.5
		WB1810	28.00	12.7
III	Head Assy FF	WB2802	11.50	5.2

1	Spearhead Point	WBNH2201
2	Spiral Pin 7/8" x 1"	WBNH2205
3	Compression Spring	WBNH2202
4	Detent Plunger	WBNH2203
5	Spearhead Base	WB2204
6	Spring Pin, 3/8" x 1"5/8	WB2103
7	Latch Retracting Case	WB2806
8	Nyloc Bolt 3/8" - 16 x 3/4"	WBNH2821
9	Washer	WB2822
10	Latch Compression Spring	WB2823
11	Upper Latch Body	WB2809-1
12	Link	WB2807
13	Latch	WB2805
14	Spring Pin, 1/2" x 2"	WB2106
15	Stainless Steel Ball, 22mm	WBNH2909-4
16	Landing Indicator Bushing	WBNH2909-5
17	Landing Shoulder	WB2909-2
18	Lower Latch Body	WB2909-3
19	Hex Nut	WB2110
20	Spindle	WB2111
21	Shut-off Valve, Hard	WB2112U
22	Valve Adjusting Washer	WB2113
23	Thrust Bearing	WB2114
24	Spindle Bearing	WB2115
25	Compression Spring	WB2116
26	Lock Nut	WB2117
27	Inner Tube Cap Assy (27A,B,C)	WB2119
28	Grease Fitting	WB2120
29	Stainless Steel Ball 7/8"	WB2121
30	Check Valve Body	WB2123
31	Inner Tube 5'	ITB2125
32	Inner Tube 10'	ITB2130
33	Stop Ring	WB2132
34	Core Lifter	WB2133
35	Core Lifter Case	WB2131
36	Locking coupling standard	WB2134
37	Adaptor Coupling	WB2135
38	Landing Ring	WB2136
39	Outer tube 5'	OTB2145
40	Outer tube 10'	OTB2150
41	Inner tube stabilizer	WB2139
42	Thread protector	WB2140

# WIRELINE CORE BARREL SURFACE

«Knuckle Head» Size : BTW



## ASSEMBLIES

Group	Description	Part No	Weight lb	kg
I	Core Barrel Assy FF 5' 10'	WBTW0405	49.00	22.3
		WBTW0410	74.40	33.8
II	Inner Tube Assy FF 5' 10'	WBTW1405	21.00	9.5
		WBTW1410	28.00	12.7
III	Head Assy FF	WBTW2004	11.5	5.2

## CORE SIZE

Description	Core Diameter	
	mm	inch
BTW	36.3	1.654
B	36.3	1.432

1	Spearhead point	WBNH2201
2	Spiral pin (7/16" X 1")	WBNH2205
3	Compression spring	WBNH2202
4	Detent plunger	WBNH2203
5	Spearhead base	WB2204
6	Spring pin (2) (3/8" x 1 5/8")	WB2103
7	Latch retracting case	WB2206
8	Latch spring	WB2104
9	Latch (2)	WB2105
10	Spiral pin (3/8" x 1 1/4")	WB2106
11	Latch body assy	WBTW2909
12	Upper body	WB2909-1
13	Landing shoulder with ID grooves	WBTW2909-2
14	Lower body with ID grooves	WB2909-3
15	Steel ball 22 mm	WBNH2909-4
16	Landing indicator bushing	WBNH2909-5
17	Lock nut	WB2110
18	Spindel assy	WB2111
19	Shut-off valve (2)	WBTW2312U
20	Valve adjusting washer (2)	WBTW2313
21	Ball thrust bearing	WB2114
22	Spindle bearing	WB2115
23	Ball thrust bearing	WB2114
24	Compression spring	WB2116
25	Self lock nut	WB2117
26	Inner tube cap assy FF	WBTW2319
27	Grease fitting	WB2120
28	Steel ball (7/8")	WB2121
29	Check valve body	WB2123
30	Inner tube 5'	ITBTW2325
30	Inner tube 10'	ITBTW2330
31	Core lifter	WBTW2333
32	Core lifter case	WBTW2331
33	Locking coupling standard	WBTW2334
34	Adaptor coupling	WBTW2335
35	Landing ring	WBTW2336
36	Outer tube 5'	OTBTW2345
36	Outer tube 10'	OTBTW2350
37	Inner tube stabilizer	WBTW2339
38	Thread protector	WB2340



# WIRELINE OVERSHOT SURFACE

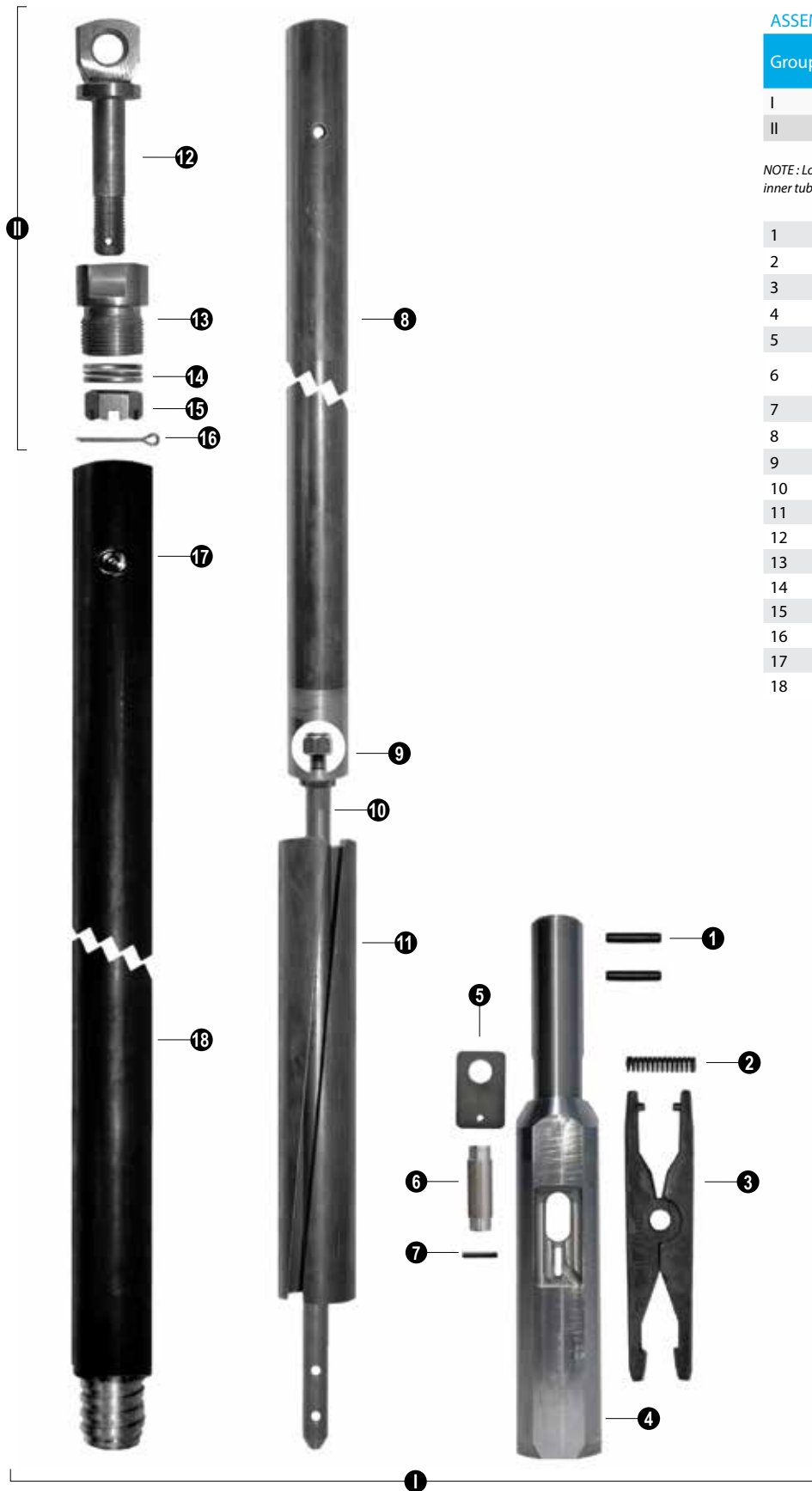
"Knuckle Head" Size : B

## ASSEMBLIES

Group	Description	Part No	Weight	
			lb	kg
I	Overshot Assy	OB3200NS	23.00	10.4
II	Cable Swivel	OBNH3121	0.56	0.2

NOTE : Locking sleeve is used in dry hole only. It must be removed when hoisting inner tube.

1	Spiral pin (2) (7/32" X 1/4")	OB3222
2	Lifting dog spring	OBNH3116
3	Lifting dog (2)	OB3119
4	Overshot head	OB3215M
5	Guiding plate	OB3215M-1
6	Lifting dog pivot pin (1/8" X 1 7/16")	OB3217M
7	Spring pin (1) (3/16" X 1 3/8")	OB3118
8	Jar tube weldment	OB3221
9	Self lock nut	OB3108
10	Jar staff	OB3212
11	Locking sleeve	OB3111
12	Eye bolt	OBNH3102
13	Cable swivel collar	OBNH3103
14	Needle thrust bearing	OBNH3104
15	Nut	OBNH3105
16	Cotter pin (3/32" X 1")	OBNH3106
17	Grease fitting	WB2120
18	Cable swivel body	OB3207



# WIRELINE CORE BARREL SURFACE

'Knuckle Head' Size : N

## ASSEMBLIES

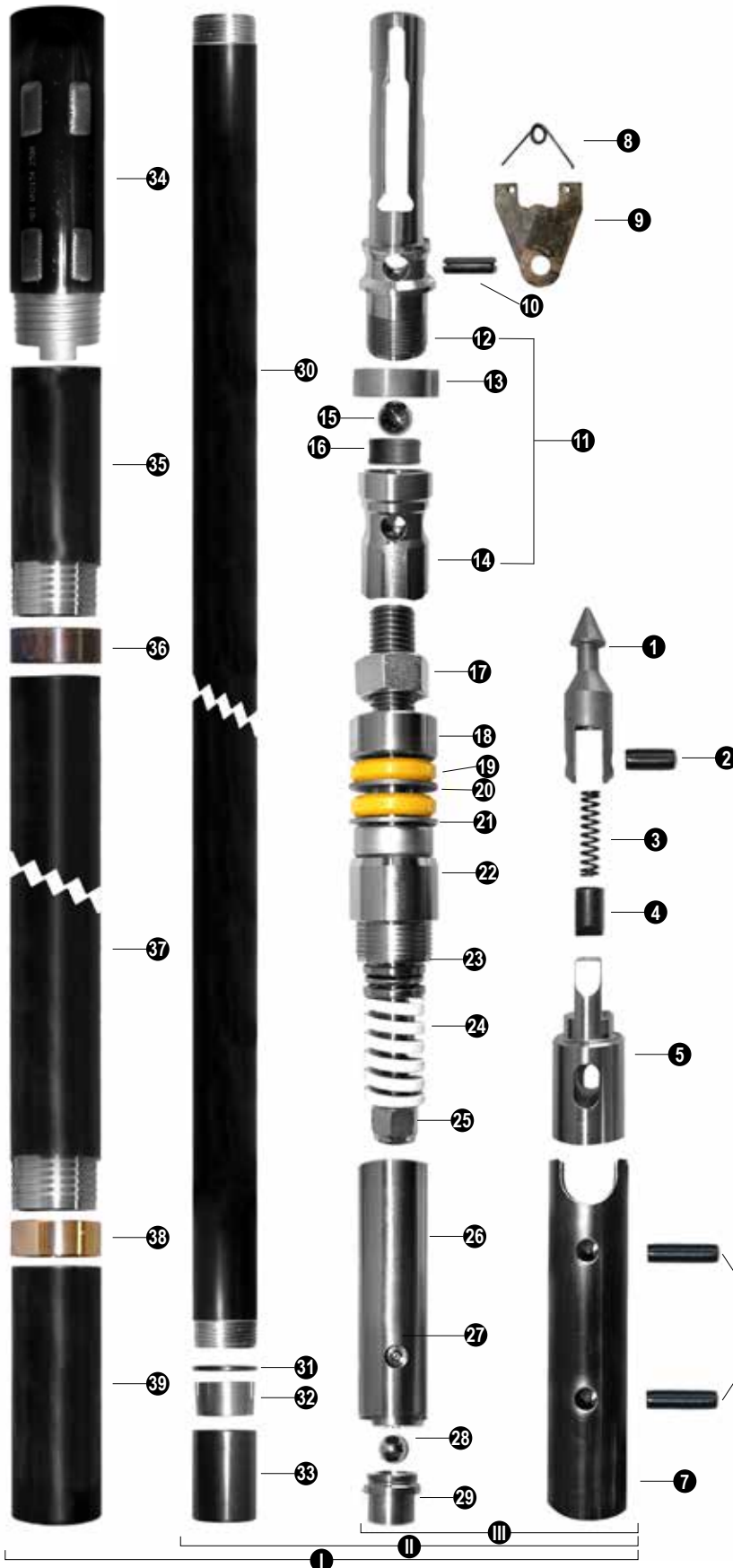
Group	Description	Part No	Weight	
			lb	kg
I	Core Barrel Assy FF 5' 10'	WN0205	89.70	40.7
		WN0210	138.00	62.4
II	Inner Tube Assy FF 5' 10'	WN1205	34.40	15.6
		WN1210	47.00	21.3
III	Head Assy FF	WN2002	20.13	9.1

1	Spearhead point	WBNH2201
2	Spiral pin (7/16" X 1")	WBNH2205
3	Compression spring	WBNH2202
4	Detent plunger	WBNH2203
5	Spearhead base	WN2804
6	Spring pin (2) (1/2" x 2")	WN2103
7	Latch retracting case	WN2206
8	Latch spring	WN2104
9	Latch (2)	WN2105
10	Spring pin (1/2" x 1 1/2")	WN2106
11	Latch body assy	WN2909
12	Upper body	WN2909-1
13	Landing shoulder	WN2909-2
14	Lower body	WN2909-3
15	Steel ball 22 mm	WBNH2909-4
16	Landing indicator bushing	WBNH2909-5
17	Lock nut	WN2110
18	Spindel assy	WN2111
19	Shut-off valve (2)	WN2112U
20	Valve adjusting washer (2)	WN2113
21	Ball thrust bearing	WN2114
22	Spindle bearing c/w brass bushing Also available with Regular Spindle bearing (see Options)	WN2115M
23	Hanger bearing	WN2124
24	Compression spring	WN2116
25	Self lock nut	WN2117
26	Inner tube cap assy FF	WN2119
27	Grease fitting	WB2120
28	Steel ball (7/8")	WN2121
29	Check valve body	WN2123
30	Inner tube 5'	ITN2125
30	Inner tube 10'	ITN2130
31	Stop ring	WN2132
32	Core lifter	WN2133
33	Core lifter case	WN2131
34	Locking coupling standard	WN2134
35	Adaptor coupling	WN2135
36	Landing ring	WN2136
37	Outer tube 5'	OTN2145
37	Outer tube 10'	OTN2150
38	Inner tube stabilizer	WN2139
39	Thread protector	WN2140

## OPTION

WN2115

N SPINDLE BEARING



# WIRELINE CORE BARREL SURFACE

"Knuckle Head" Size : NLL

## ASSEMBLIES

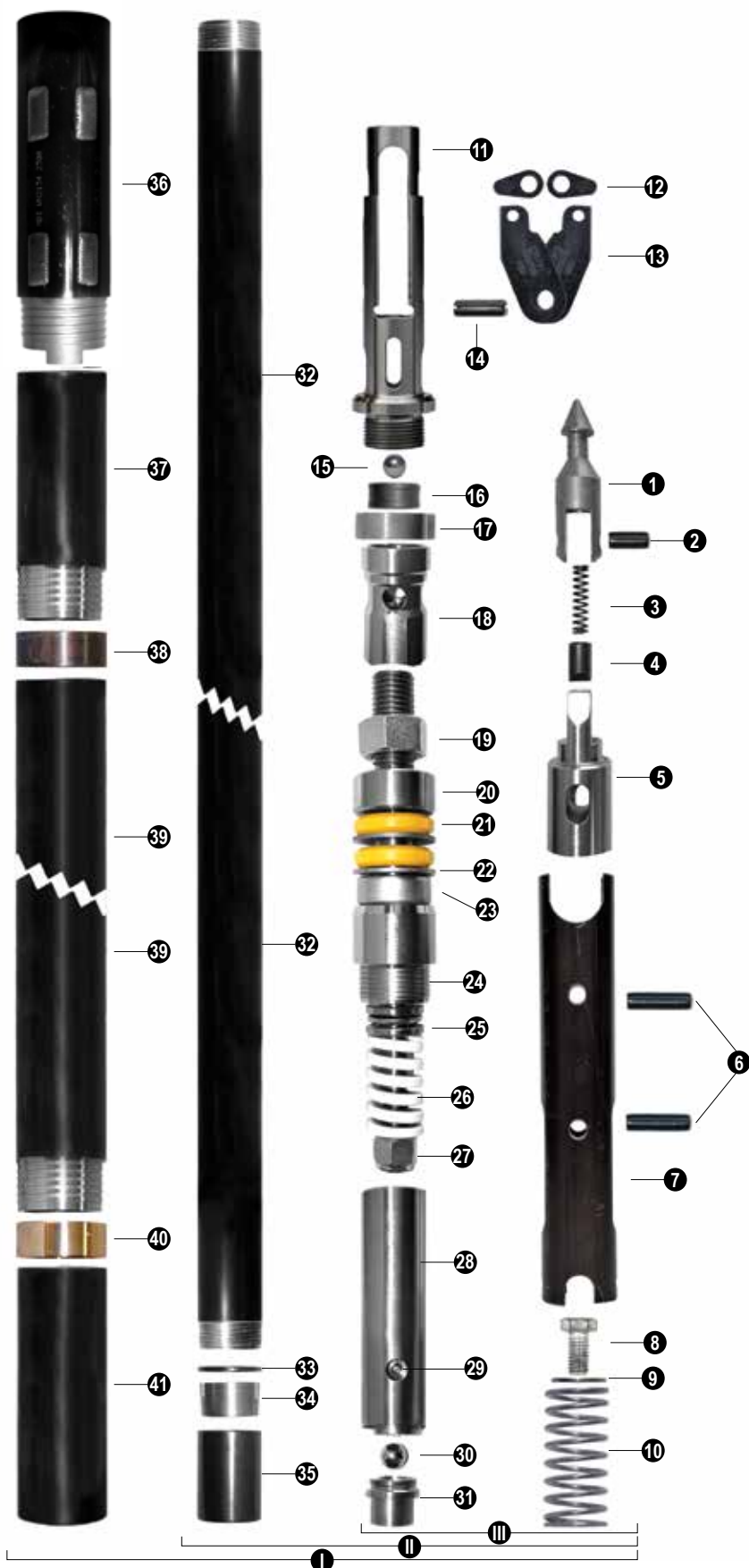
Group	Description	Part No	Weight	
			lb	kg
I	Core Barrel Assy FF 1,5m / 5' 3m / 10'	WN0805	89.70	40.7
		WN0810	138.00	62.4
II	Inner Tube Assy FF 1,5m / 5' 3m / 10'	WN1805	34.40	15.6
		WN1810	47.00	21.3
III	Head Assy FF	WN2802	20.13	9.1

1	Spearhead Point	WBNH2201
2	Spiral Pin 7/8" x 1"	WBNH2205
3	Compression Spring	WBNH2202
4	Detent Plunger	WBNH2203
5	Spearhead Base	WN2804
6	Spring Pin, 1/2" x 2" (2)	WN2103
7	Latch Retracting Case	WN2806
8	Nyloc Bolt 3/8" - 16 x 3/4"	WBNH2821
9	Washer	WN2822
10	Latch Compression Spring	WN2823
11	Upper Latch Body	WN2809-1
12	Link (2)	WN2807
13	Latch (2)	WN2805
14	Spring Pin, 1/2" x 1" 1/2	WN2106
15	Stainless Steel Ball, 22mm	WBNH2909-4
16	Landing Indicator Bushing	WBNH2909-5
17	Landing Shoulder	WN2909-2
18	Lower Latch Body	WN2909-3
19	Hex Nut	WN2110
20	Spindle	WN2111
21	Shut-off Valve, Hard (2)	WN2112U
22	Valve Adjusting Washer (2)	WN2113
23	Thrust Bearing	WN2114
24	Spindle bearing c/w brass bushing Also available with Regular Spindle bearing (see Options)	WN2115M
25	Hanger Bearing	WN2124
26	Compression Spring	WN2116
27	Self Lock Nut	WN2117
28	Inner Tube Cap Assy	WN2119
29	Grease Fitting	WB2120
30	Stainless Steel Ball 7/8"	WN2121
31	Check Valve Body	WN2123
32	Inner Tube 5'	ITN2125
32	Inner Tube 10'	ITN2130
33	Stop Ring	WN2132
34	Core Lifter	WN2133
35	Core Lifter Case	WN2131
36	Locking coupling standard	WN2134
37	Adaptor Coupling	WN2135
38	Landing Ring	WN2136
39	Outer tube 5'	OTN2145
39	Outer tube 10'	OTN2150
40	Inner tube stabilizer	WN2139
41	Thread protector	WN2140

## OPTION

WN2115

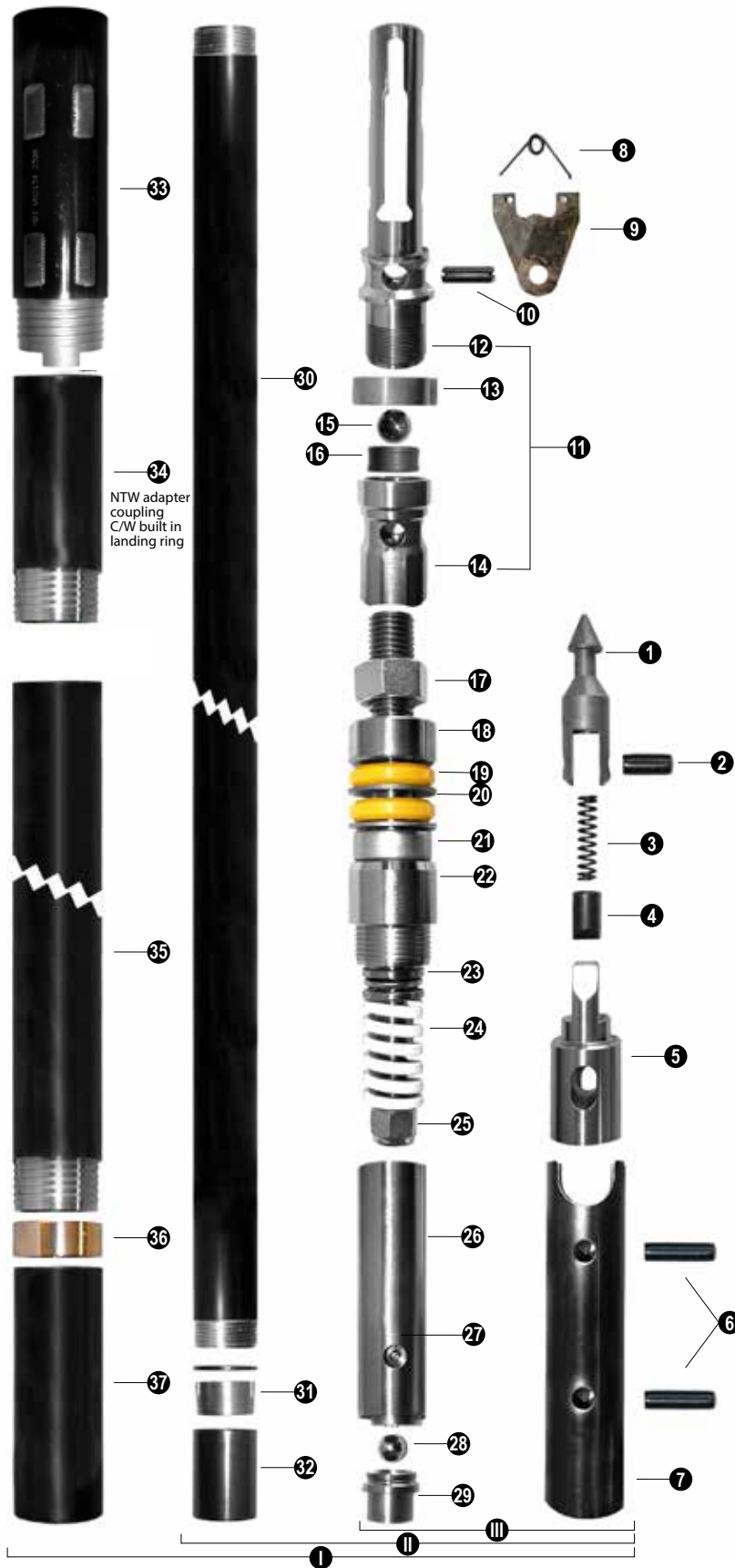
N SPINDLE BEARING





# WIRELINE CORE BARREL THIN WALL SURFACE

"Knuckle Head" Size : NTW



## ASSEMBLIES

Group	Description	Part No	Weight lb	kg
I	Core Barrel Assy FF 5' 10'	WNTW0605	75.00	34.0
		WNTW0610	110.00	50.0
II	Inner Tube Assy FF 5' 10'	WNTW1405	31.50	14.6
		WNTW1410	39.50	18.0
III	Head Assy FF	WNTW2004	20.10	9.6
1	Spearhead point	WBNH2201		
2	Spiral pin (7/16" X 1")	WBNH2205		
3	Compression spring	WBNH2202		
4	Detent plunger	WBNH2203		
5	Spearhead base	WN2804		
6	Spring pin (2) (1/2" x 2")	WN2103		
7	Latch retracting case	WN2206		
8	Latch spring	WN2104		
9	Latch (2)	WN2105		
10	Spring pin (1/2" x 1 1/2")	WN2106		
11	Latch body assy	WNTW2909		
12	Upper body	WN2909-1		
13	Landing shoulder	WNTW2909-2		
14	Lower body	WN2909-3		
15	Steel ball 22 mm	WBNH2909-4		
16	Landing indicator bushing	WBNH2909-5		
17	Lock nut	WN2110		
18	Spindel assy	WN2111		
19	Shut-off valve (2)	WNTW2312U		
20	Valve adjusting washer (2)	WNTW2313		
21	Ball thrust bearing	WN2114		
22	Spindle bearing c/w brass bushing Also available with Regular Spindle bearing (see Options)	WN2115M		
23	Hanger bearing	WN2124		
24	Compression spring	WN2116		
25	Self lock nut	WN2117		
26	Inner tube cap assy FF	WNTW2319		
27	Grease fitting	WB2120		
28	Steel ball (7/8")	WN2121		
29	Check valve body	WN2123		
30	Inner tube 5'	ITNTW2325		
30	Inner tube 10'	ITNTW2330		
31	Core lifter	WNTW2333		
32	Core lifter case	WNTW2331		
33	Locking coupling standard	WNTW2363		
34	Adaptor coupling (complete with built in landing ring)	WNTW2364		
35	Outer tube 5'	OTNTW2367		
35	Outer tube 10'	OTNTW2368		
36	Inner tube stabilizer	WNTW2365		
37	Thread protector	WNTW2366		

## OPTION

WH2115	H SPINDLE BEARING
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# WIRELINE CORE BARREL SURFACE

'Knuckle Head' Size : N 2

## ASSEMBLIES

Group	Description	Part No	Weight lb	kg
I	Core Barrel Assy FF 5' 10'	WN0705	89.70	40.7
		WN0710	138.00	62.4
II	Inner Tube Assy FF 5' 10'	WN1705	34.40	15.6
		WN1710	47.00	21.3
III	Head Assy FF	WN2700	20.10	9.6

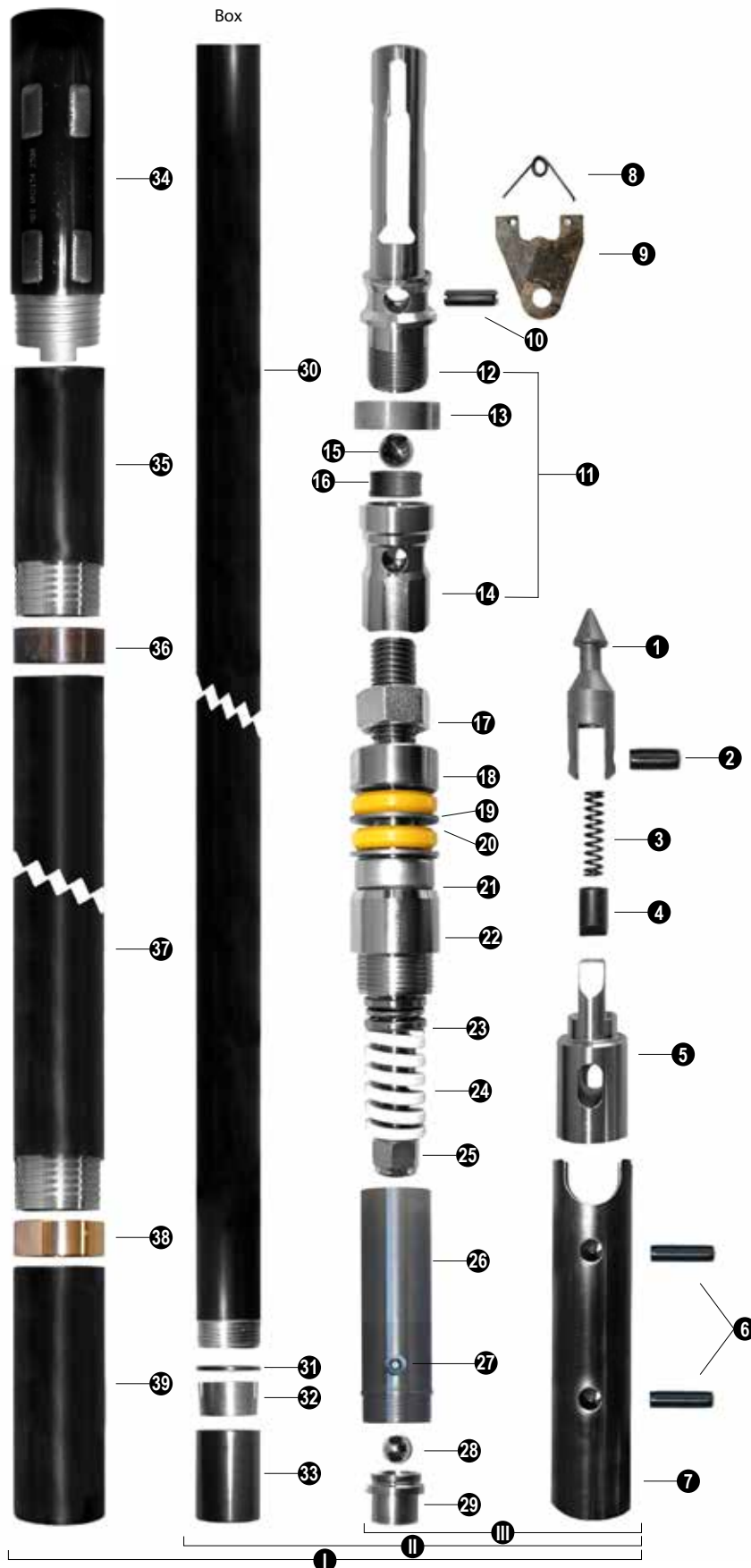
## CORE SIZE

Description	Weight lb	kg
N 2	50.5	1.990
N	47.6	1.875
NTW	56	2.205

1	Spearhead point	WBNH2201
2	Spiral pin (7/16" X 1")	WBNH2205
3	Compression spring	WBNH2202
4	Detent plunger	WBNH2203
5	Spearhead base	WN2204
6	Spring pin (2) (1/2" x 2")	WN2103
7	Latch retracting case	WN2206
8	Latch spring	WN2104
9	Latch (2)	WN2105
10	Spring pin (1/2" x 1 1/2")	WN2106
11	Latch body assy	WN2709
12	Upper body	WN2909-1
13	Landing shoulder	U36072
14	Lower body	WN2909-3
15	Steel ball 22 mm	WBNH2909-4
16	Landing indicator bushing	WBNH2909-5
17	Lock nut	WN2110
18	Spindel assy	WN2111
19	Shut-off valve (2)	WU2112U
20	Valve adjusting washer (2)	WN2113
21	Ball thrust bearing	WN2114
22	Spindle bearing c/w brass bushing Also available with Regular Spindle bearing (see Option)	WN2115M
23	Hanger bearing	WN2124
24	Compression spring	WN2116
25	Self lock nut	WN2117
26	Inner tube cap assy FF	WN2719
27	Grease fitting	WB2120
28	Steel Ball (7/8)	WN2121
29	Check valve body	WN2123
30	Inner tube 5'	ITN2725
30	Inner tube 10'	ITN2730
31	Stop ring	WN22732
32	Core lifter	WN22733
33	Core lifter case	WN22731
34	Locking coupling standard	WN2134
35	Adaptor coupling	WN2135
36	Landing ring	WN2736
37	Outer tube 5'	OTN2145
37	Outer tube 10'	OTN2150
38	Inner tube stabilizer	WN2739
39	Thread protector	WN2140

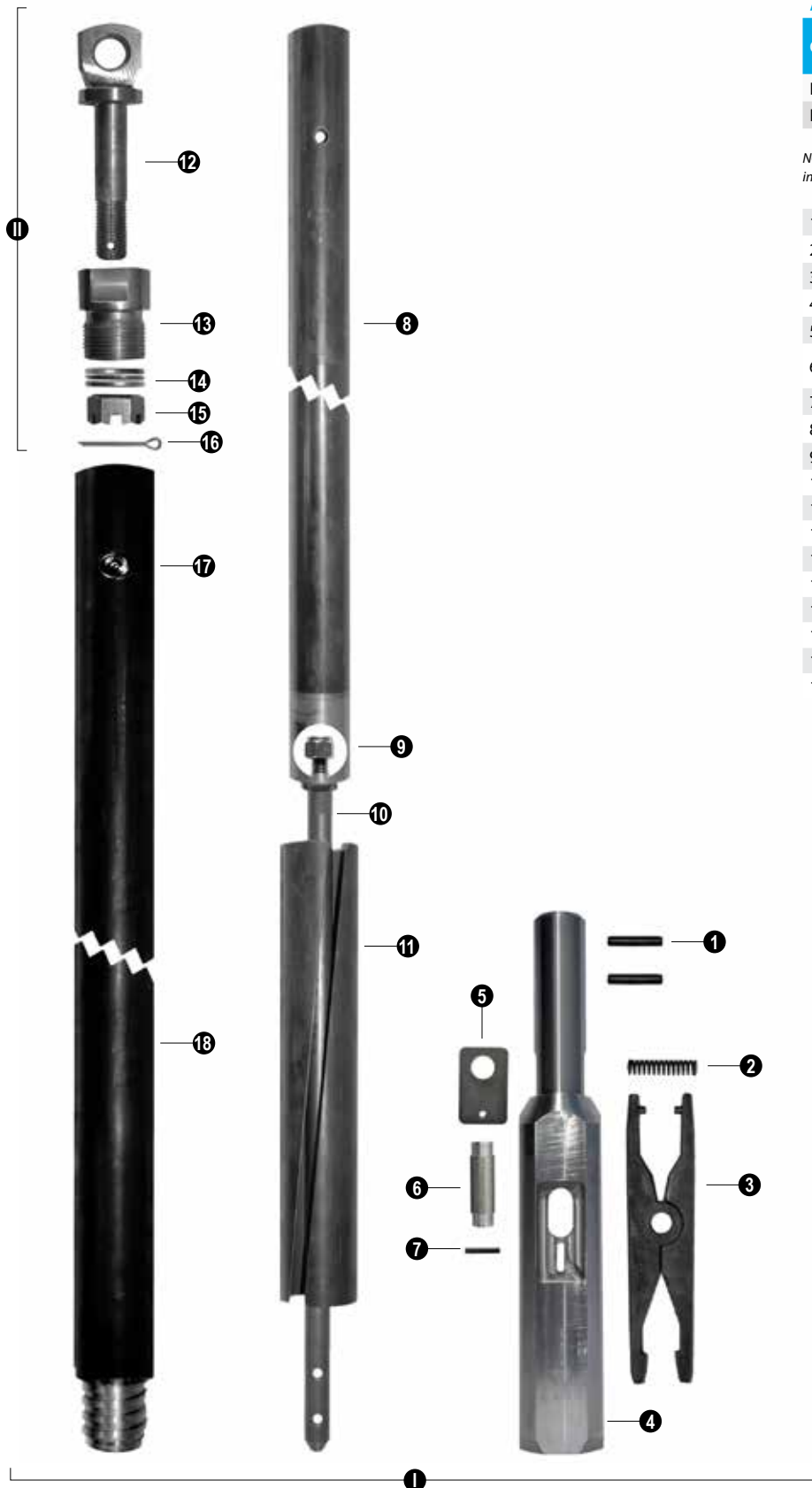
## OPTION

WN2115	N SPINDLE BEARING
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# WIRELINER OVERSHOT SURFACE

'Knuckle Head' Size : N



## ASSEMBLIES

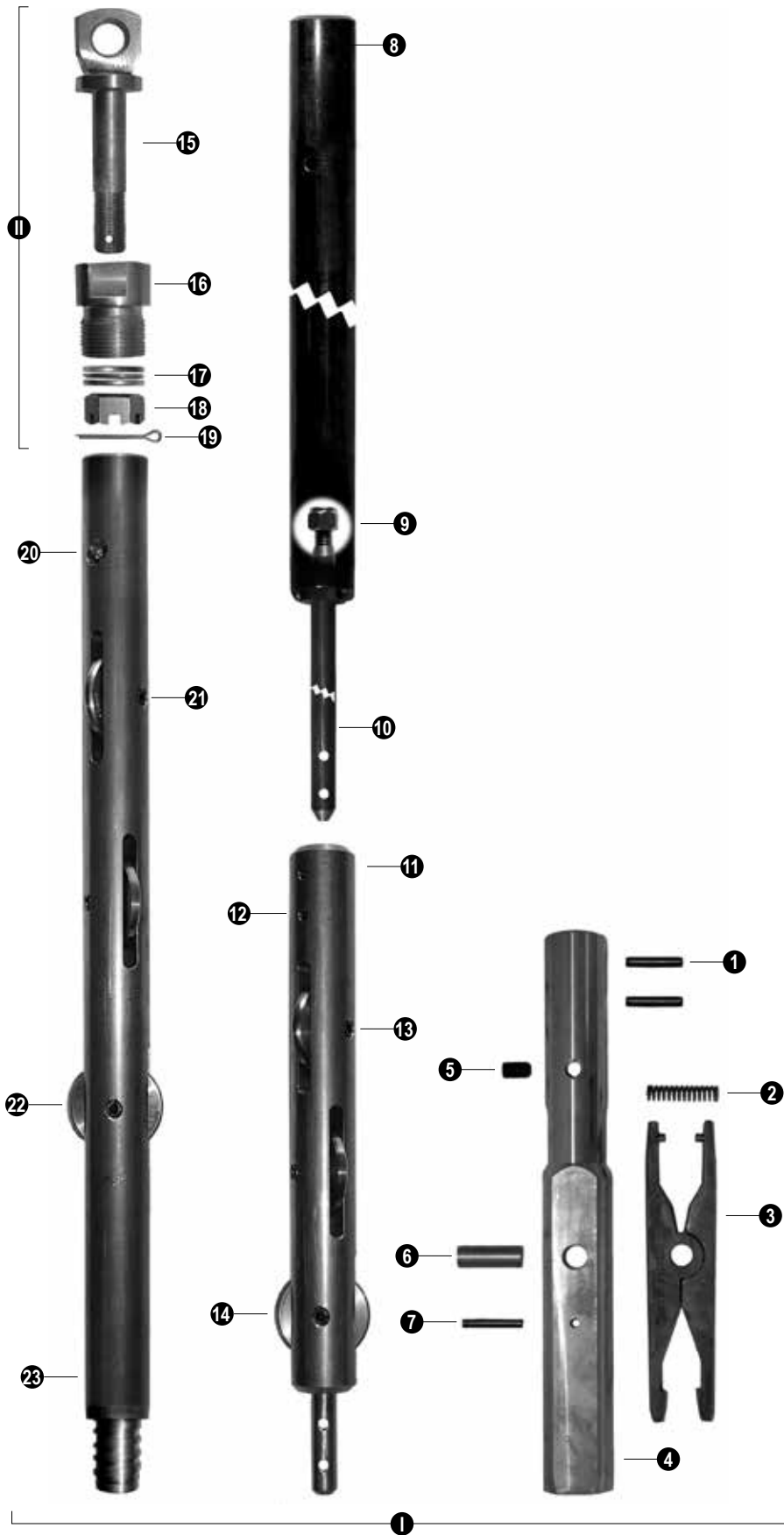
Group	Description	Part No	Weight	
			lb	kg
I	Overshot Assy	ON3200NS	35.35	16.0
II	Cable Swivel	OBNH3121	0.56	0.2

NOTE : Locking sleeve is used in dry hole only. It must be removed when hoisting inner tube.

1	Spiral pin (2) (1/4" X 1 1/2")	ONH3222
2	Lifting dog spring	OBNH3116
3	Lifting dog (2)	ONH3119
4	Overshot head	ON3215M
5	Guiding plate (2)	ON3215M-1
6	Lifting dog pivot pin (1/2" X 1 15/16")	ON3217M
7	Spring pin (1) (1/4" X 1 3/4")	ON3218M
8	Jar tube weldment	ONH3221
9	Self lock nut	ONH3108
10	Jar staff	ONH3212
11	Locking sleeve	ONH3111
12	Eye bolt	OBNH3102
13	Cable swivel collar	OBNH3103
14	Needle thrust bearing	OBNH3104
15	Nut	OBNH3105
16	Cotter pin (3/32" X 1")	OBNH3106
17	Grease fitting	WB2120
18	Cable swivel body	ONH3207

# WIRELINE OVERSHOT SURFACE

'Roller Type' Size : N



## ASSEMBLIES

Group	Description	Part No	Weight	
			lb	kg
I	Overshot Assy	ON3250	39.00	17.7
II	Cable Swivel	OBNH3121	0.56	0.2
1	Spiral pin (2) (1/4" X 1 1/2")	ONH3222		
2	Lifting dog spring	OBNH3116		
3	Lifting dog (2)	ONH3119		
4	Overshot head	ON3215		
5	Machine screw	OBNH3214		
6	Lifting dog pivot pin (1/2" X 1 15/16")	ON3217		
7	Spring pin (1) (1/4" X 1 3/4")	ON3218		
8	Jar tube weldment	ONH3221		
9	Lock nut	ONH3108		
10	Jar staff	ONH3212		
11	Overshot head roller type assy	ON3258		
12	Spiral pin (2) (1/4" x 1 1/2")	ONH3222		
13	Spring pin (3) (3/8" x 1 5/8")	WB2103		
14	Steel roller (3)	ON3256		
15	Eye bolt	OBNH3102		
16	Cable swivel collar	OBNH3103		
17	Needle thrust bearing	OBNH3104		
18	Nut	OBNH3105		
19	Cotter pin	OBNH3106		
20	Grease fitting	WB2120		
21	Spring pin (3) (3/8" x 1 5/8")	WB2103		
22	Steel roller (3)	ON3256		
23	Cable swivel body roller type assy	ON3257		



# WIRELINE CORE BARREL SURFACE

'Knuckle Head' Size : H

## ASSEMBLIES

Group	Description	Part No	Weight lb kg	
I	Core Barrel Assy FF 5' 10'	WH0205	145.00	65.9
		WH0210	214.50	97.2
II	Inner Tube Assy FF 5' 10'	WH1205	60.50	27.4
		WH1210	79.00	35.8
III	Head Assy FF	WH2002	41.25	18.7

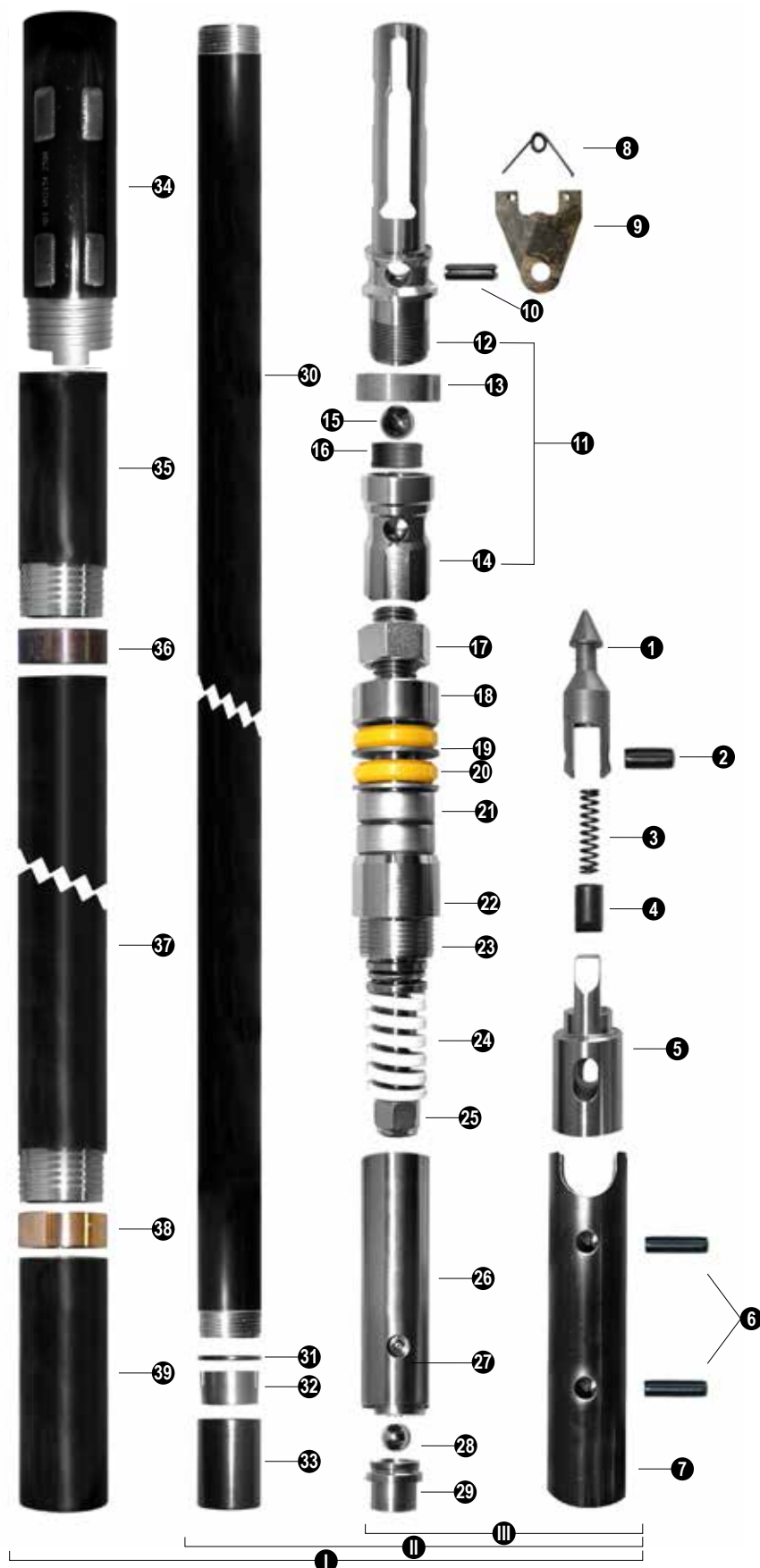
  

1	Spearhead point	WBNH2201
2	Spiral pin (7/16" X 1")	WBNH2205
3	Compression spring	WBNH2202
4	Detent plunger	WBNH2203
5	Spearhead base	WH2804
6	Spring pin (2) (1/2" x 2 3/4")	WH2103
7	Latch retracting case	WH2206
8	Latch spring	WH2104
9	Latch (2)	WH2105
10	Spring pin (1/2" x 2")	WN2103
11	Latch body assy	WH2909
12	Upper body	WH2909-1
13	Landing shoulder	WH2909-2
14	Lower body	WH2909-3
15	Steel ball 22 mm	WBNH2909-4
16	Landing indicator bushing	WBNH2909-5
17	Lock nut	WH2110
18	Spindel assy	WH2111
19	Shut-off valve (2)	WH2112U
20	Valve adjusting washer (2)	WH2113
21	Ball thrust bearing (2)	WH2114
22	Spindle bearing c/w brass bushing Also available with Regular Spindle bearing (see Option)	WH2115M
23	Ball thrust bearing	WN2114
24	Compression spring	WH2116
25	Self lock nut	WH2117
26	Inner tube cap assy FF	WH2119
27	Grease fitting	WB2120
28	Steel ball (7/8)	WN2121
29	Check valve body	WN2123
30	Inner tube 5'	ITH2125
30	Inner tube 10'	ITH2130
31	Stop ring	WH2132
32	Core lifter	WH2133
33	Core lifter case	WH2131
34	Locking coupling standard	WH2134
35	Adaptor coupling	WH2135
36	Landing ring	WH2136
37	Outer tube 5'	OTH2145
37	Outer tube 10'	OTH2150
38	Inner tube stabilizer	WH2139
39	Thread protector	WH2140

## OPTION

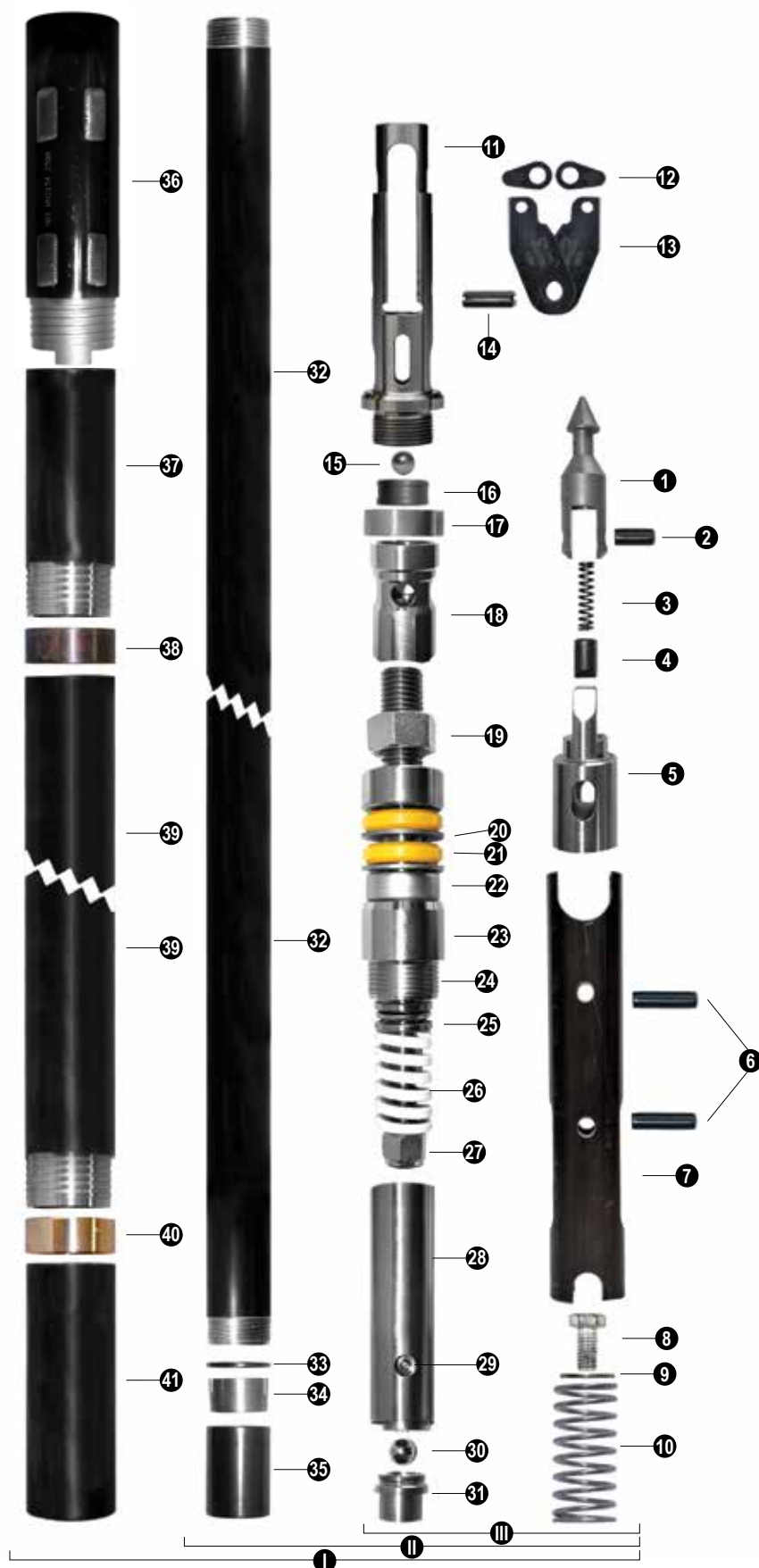
WH2115

H SPINDLE BEARING



# WIRELINE CORE BARREL SURFACE

"Knuckle Head" Size : HLL



Group	Description	Part No	Weight lb kg	
I	Core Barrel Assy FF 1,5m / 5' 3m / 10'	WH0805	89.70	40.7
		WH0810	138.00	62.4
II	Inner Tube Assy FF 1,5m / 5' 3m / 10'	WH1805	34.40	15.6
		WH1810	47.00	21.3
III	Head Assy FF	WH2802	20.13	9.1

1	Spearhead Point	WBNH2201
2	Spiral Pin 7/8" x 1"	WBNH2205
3	Compression Spring	WBNH2202
4	Detent Plunger	WBNH2203
5	Spearhead Base	WH2804
6	Spring Pin, 1/2" x 2" (2)	WH2103
7	Latch Retracting Case	WH2806
8	Nyloc Bolt 3/8" - 16 x 3/4"	WBNH2821
9	Washer	WH2822
10	Latch Compression Spring	WH2823
11	Upper Latch Body	WH2809-1
12	Link (2)	WH2807
13	Latch (2)	WH2805
14	Spring Pin, 1/2" x 2"	WN2103
15	Stainless Steel Ball, 22mm	WBNH2909-4
16	Landing Indicator Bushing	WBNH2909-5
17	Landing Shoulder	WH2909-2
18	Lower Latch Body	WH2809-3
19	Hex Nut	WH2110
20	Spindle	WH2111
21	Shut-off Valve, Hard (2)	WH2112U
22	Valve Adjusting Washer (2)	WH2113
23	Thrust Bearing	WH2114
24	Spindle bearing c/w brass bushing Also available with Regular Spindle bearing (see Option)	WH2115M
25	Hanger Bearing	WN2114
26	Compression Spring	WH2116
27	Self Lock Nut	WH2117
28	Inner Tube Cap Assy	WH2119
29	Grease Fitting	WB3120
30	Stainless Steel Ball 7/8"	WN2121
31	Check Valve Body	WN2123
32	Inner Tube 5'	ITH2125
32	Inner Tube 10'	ITH2130
33	Stop Ring	WH2132
34	Core Lifter	WH2133
35	Core Lifter Case	WH2131
36	Locking coupling standard	WH2134
37	Adaptor Coupling	WH2135
38	Landing Ring	WH2136
39	Outer tube 5'	OTH2145
39	Outer tube 10'	OTH2150
40	Inner tube stabilizer	WH2139
41	Thread protector	WH2140

## OPTION

WH2115

H SPINDLE BEARING

# WIRELINE CORE BARREL THIN WALL SURFACE

'Knuckle Head' Size : HTW

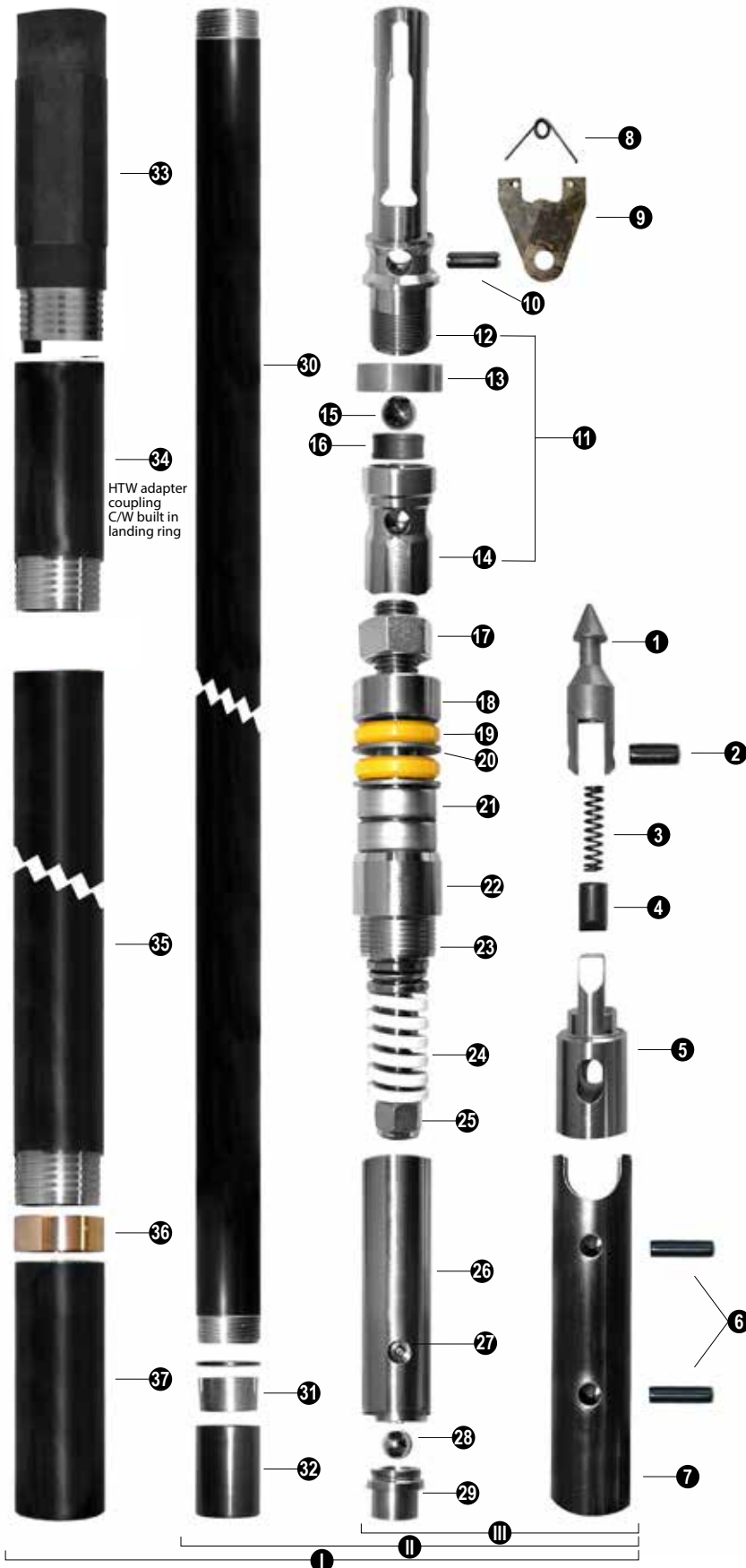
## ASSEMBLIES

Group	Description	Part No	Weight lb	kg
I	Core Barrel Assy FF 5' 10'	WHTW0405	128.00	58.40
		WHTW0410	185.20	84.00
II	Inner Tube Assy FF 5' 10'	WHTW1405	61.55	27.90
		WHTW1410	77.55	35.20
III	Head Assy FF	WHTW2004	43.55	19.74

1	Spearhead point	WBNH2201
2	Spiral pin (7/16" X 1")	WBNH2205
3	Compression spring	WBNH2202
4	Detent plunger	WBNH2203
5	Spearhead base	WH2804
6	Spring pin (2) (1/2" x 2 3/4")	WH2103
7	Latch retracting case	WH2206
8	Latch spring	WH2104
9	Latch (2)	WH2105
10	Spring pin (1/2" x 2")	WN2103
11	Latch body assy	WHTW2909
12	Upper body	WH2909-1
13	Landing shoulder	WHTW2909-2
14	Lower body	WH2909-3
15	Steel ball 22 mm	WBNH2909-4
16	Landing indicator bushing	WBNH2909-5
17	Lock nut	WH2110
18	Spindel assy	WH2111
19	Shut-off valve (2)	WH2312U
20	Valve adjusting washer (2)	WH2113
21	Ball thrust bearing (2)	WH2114
22	Spindle bearing c/w brass bushing Also available with Regular Spindle bearing (see Option)	WH2115M
23	Ball thrust bearing	WN2114
24	Compression spring	WH2116
25	Self lock nut	WH2117
26	Inner tube cap assy FF	WHTW2319
27	Grease fitting	WB2120
28	Steel ball (7/8")	WN2121
29	Check valve body	WN2123
30	Inner tube 5'	ITHTW2325
30	Inner tube 10'	ITHTW2330
31	Core lifter	WHTW2333
32	Core lifter case	WHTW2331
33	Locking coupling standard	WHTW2334
34	Adaptor coupling (complete with built in landing ring)	WHTW2335
35	Outer tube 5'	OTHTW2345
35	Outer tube 10'	OTHTW2350
36	Inner tube stabilizer	WHTW2339
37	Thread protector	WHTW2340

## OPTION

WH2115	H SPINDLE BEARING
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# WIRELINE OVERSHOT SURFACE "Knuckle Head" Size : H

## ASSEMBLIES

Group	Description	Part No	Weight	
			lb	kg
I	Overshot Assy	OH3200NS	38.60	17.5
II	Cable Swivel	OBNH3121	0.56	0.2

NOTE : Locking sleeve is used in dry hole only. It must be removed when hoisting inner tube.

1	Spiral pin (2) (1/4" X 1 1/2")	ONH3222
2	Lifting dog spring	OBNH3116
3	Lifting dog (2)	ONH3119
4	Overshot head	ON3215M
5	Sleeve adaptor	OH3220-5P
6	Guiding plate (2)	ON3215M-1
7	Lifting dog pivot pin	ON3217M
8	Spring pin (1/4" x 3 1/4")	ON3218M
9	Jar tube weldment	ONH3221
10	Self lock nut	ONH3108
11	Jar staff	ONH3212
12	Locking sleeve	ONH3111
13	Eye bolt	OBNH3102
14	Cable swivel collar	OBNH3103
15	Needle thrust bearing	OBNH3104
16	Nut	OBNH3105
17	Cotter pin (3/32" X 1")	OBNH3106
18	Grease fitting	WB2120
19	Cable swivel body	ONH3207





# WIRELINE CORE BARREL SURFACE

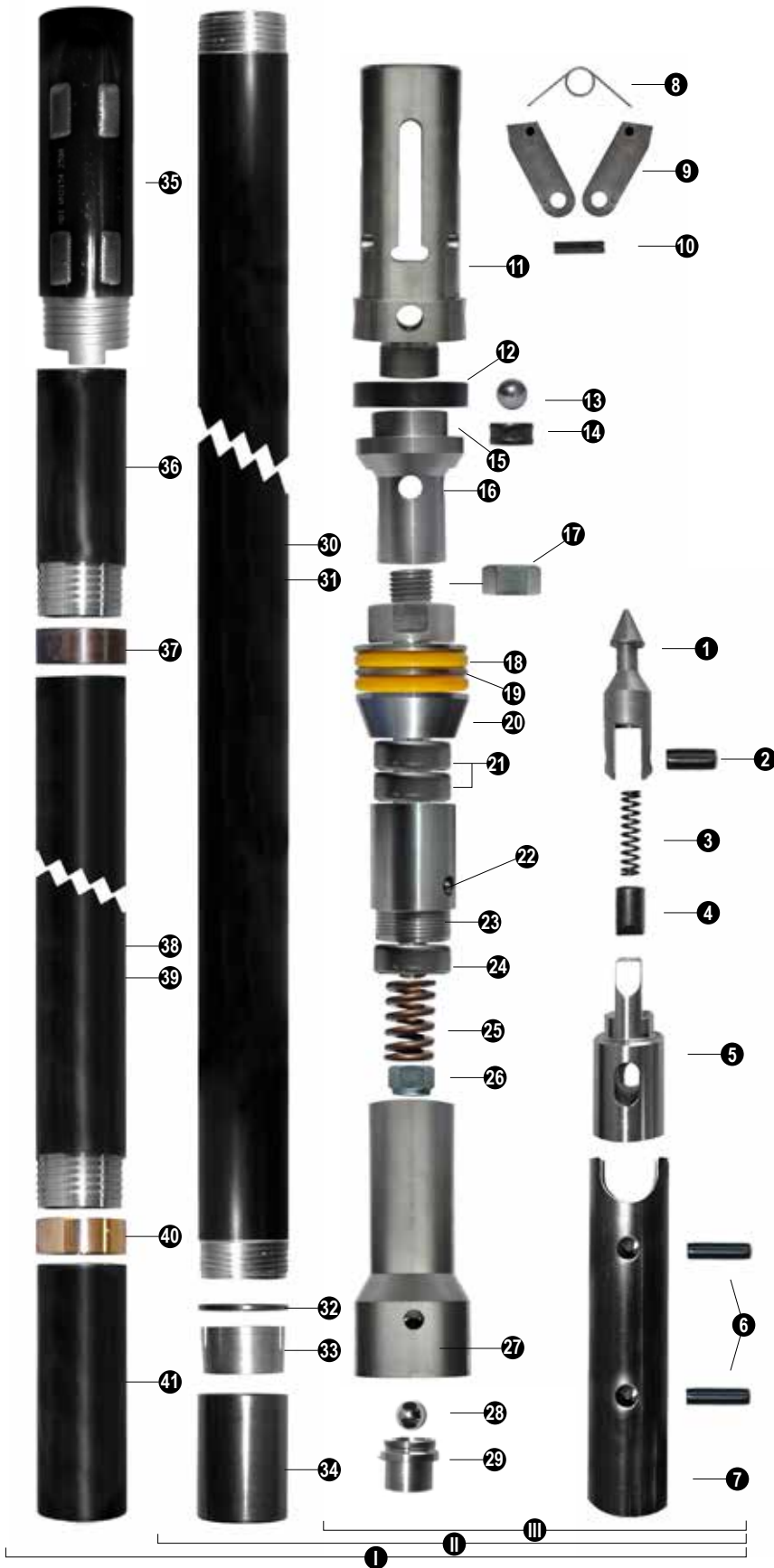
"Knuckle Head" Size : P

## ASSEMBLIES

Group	Description	Part No	Weight lb	kg
I	Core Barrel Assy FF	WP0205	211	95.7
	5' 10'	WP0210	304	138
II	Inner Tube Assy FF	WP1205	95	43.1
	5' 10'	WP1210	121	54.9
III	Head Assy FF	WP2002	66	29.9

1	Spearhead Point	WP2201
2	Spirol Pin (3/4" x 2")	WP2205
3	Spearhead Compression Spring	WP2202
4	Detent Plunger	WP2203
5	Spearhead Base	WP2204
6	Spirol Pin (20mm x 100mm)	WP2103
7	Latch Retracting Case	WP2206
8	Latch Spring	WP2104
9	Latch (2)	WP2105
10	Spring Pin (1/2" x 2") (2)	WN2103
11	Upper Latch Body	WP2909-1
12	Landing shoulder	WP2909-2
13	Stell Ball 22mm	WBNH2909-4
14	Landing Indicator Bushing	WBNH2909-5
15	Spindle Assy	WP2111
16	Lower Latch Body	WP2909-3
17	Lock Nut (1 1/2" - 6 NC)	WP2110
18	Shut off Valve (2)	WP2112-UNS
19	Valve Adjusting Washer (2)	WP2113
20	Washer Tapered	WP2119-CAP
21	Ball Thrust Bearing B13	WH2114
22	Grease Fitting	WB3120
23	Spindle Bearing	WP2115
24	Ball Thrust Bearing B9	WN2114
25	Spindle Compression Spring	WH2116
26	Self Lock Nut (1" - 8 NC)	WH2117
27	Inner Tube Cap Assy FF	WP2119
28	Steel Ball (7/8")	WN2121
29	Check Valve Body	WP2123
30	Inner Tube 5'	ITP2125
31	Inner Tube 10'	ITP2130
32	Stop Ring	WP2132
33	Core Lifter	WP2133
34	Core Lifter Case	WP2131
35	Locking coupling standard	WP2134-3
36	Adaptor coupling	WP2135-LY
37	Landing Ring	WP2136
38	Outer tube 5'	OTP2145
39	Outer tube 10'	OTP2150
40	Inner tube stabilizer	WP2139
41	Thread protector	WP2140



# WIRELINE OVERSHOT SURFACE

"Knuckle Head" Size : P

## ASSEMBLIES

Group	Description	Part No	Weight	
			lb	kg
I	Overshot Assy	OP3200	38.60	17.5
II	Cable Swivel	OP3121	0.56	0.2

NOTE : Locking sleeve is used in dry hole only. It must be removed when hoisting inner tube.

1	Spiral pin (5/16" x 2")	OP3222
2	Lifting dog spring	OP3116
3	Lifting dog	OP3119
4	Overshot head	OP3215M
5	Guiding plate	OP3215M-1
6	Lifting dog pivot pin	OP3217M
7	Spring pin (1/4" x 3 1/4")	OP3223
8	Jar tube weldment	OP3221
9	Self lock nut	WN2117
10	Jar staff	OP3212
11	Locking sleeve	OP3111
12	Eye bolt	OP3102
13	Cable swivel collar	OP3103
14	Bearing	WB2114
15	Nut	OP3105
16	Cotter pin (1/8" x 1 3/4")	HP60017
17	Grease fitting	WB2120
18	Cable swivel body	OP3207



# WIRELINE OVERSHOT SURFACE "Knuckle Head" Size : P



## ASSEMBLIES

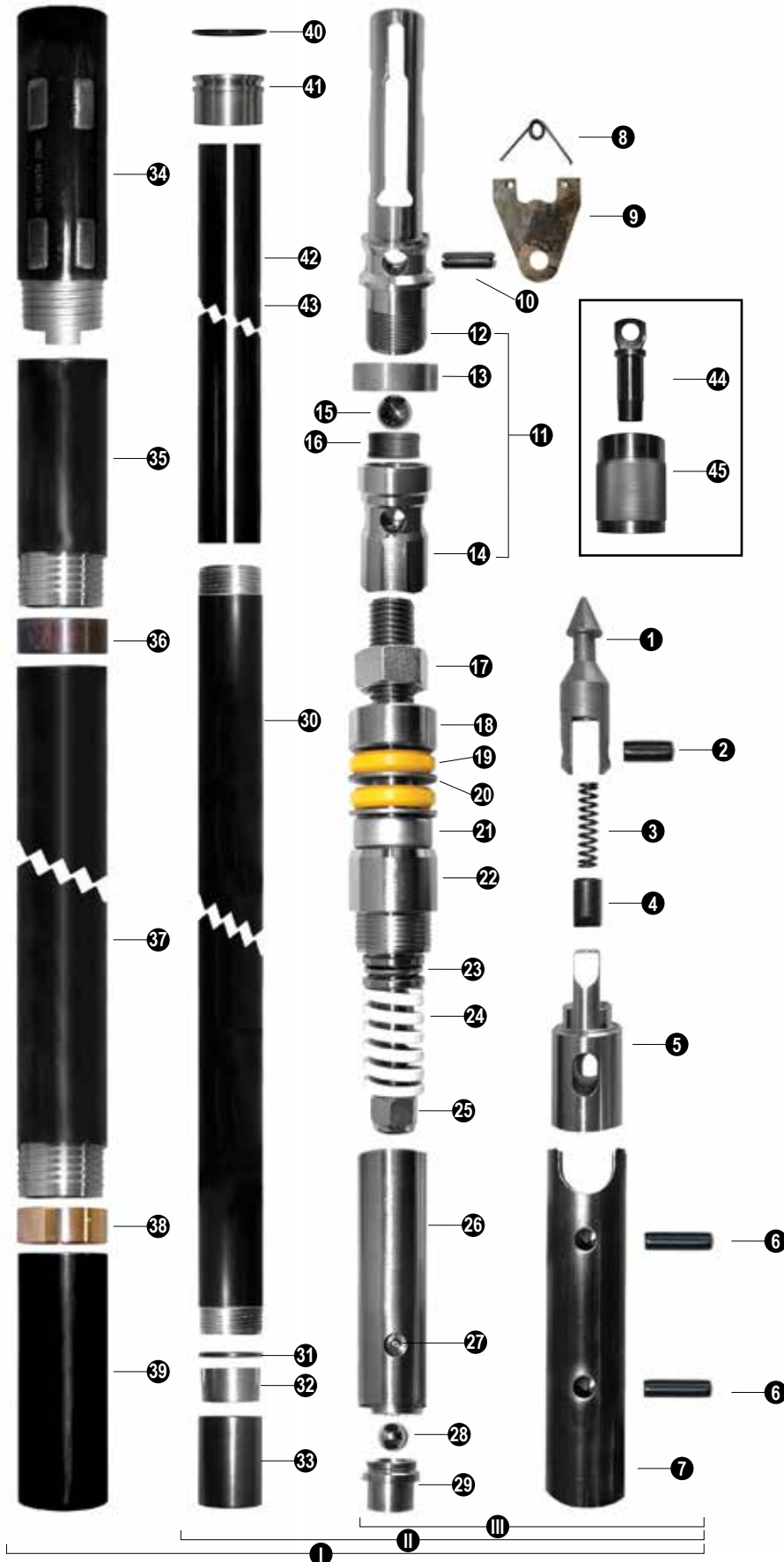
Group	Description	Part No	Weight	
			lb	kg
I	Overshot Assy	OP3200NS	38.60	17.5
II	Cable Swivel	OBNH3121	0.56	0.2

NOTE : Locking sleeve is used in dry hole only. It must be removed when hoisting inner tube.

1	Spiral pin (2) (1/4" X 1 1/2")	ONH3222
2	Lifting dog spring	OBNH3116
3	Lifting dog (2)	ONH3119
4	Overshot head	ON3215M
5	Sleeve adaptor	OP3220-5P
6	Guiding plate (2)	ON3215M-1
7	Lifting dog pivot pin	ON3217M
8	Spring pin (1/4" x 3 1/4")	ON3218M
9	Jar tube weldment	ONH3221
10	Self lock nut	ONH3108
11	Jar staff	ONH3212
12	Locking sleeve	ONH3111
13	Eye bolt	OBNH3102
14	Cable swivel collar	OBNH3103
15	Needle thrust bearing	OBNH3104
16	Nut	OBNH3105
17	Cotter pin (3/32" X 1")	OBNH3106
18	Grease fitting	WB2120
19	Cable swivel body	ONH3207

# WIRELINE CORE BARREL

## TRIPLE TUBE SIZE B



### ASSEMBLIES

Group	Description	Part No	Weight	
			lb	kg
I	Core Barrel Assy FF 5' 10'	WB30205 WB30210	54.00 90.00	24.5 40.8
II	Inner Tube Assy FF 5' 10'	WB31205 WB31210	21.00 28.00	9.5 12.7
III	Head Assy FF	WB2002	11.50	5.2

1	Spearhead point	WBNH2201
2	Spiral pin (7/16" X 1")	WBNH2205
3	Compression spring	WBNH2202
4	Detent plunger	WBNH2203
5	Spearhead base	WB2204
6	Spring pin (2) (3/8" x 1 5/8")	WB2103
7	Latch retracting case	WB2206
8	Latch spring	WB2104
9	Latch (2)	WB2105
10	Spiral pin (3/8" x 1 1/4")	WB2106
11	Latch body assy	WB2909
12	Upper body	WB2909-1
13	Landing shoulder	WB2909-2
14	Lower body	WB2909-3
15	Steel ball 22 mm	WBNH2909-4
16	Landing indicator bushing	WBNH2909-5
17	Lock nut	WB2110
18	Spindel assy	WB2111
19	Shut-off valve (2)	WB2112U
20	Valve adjusting washer (2)	WB2113
21	Ball thrust bearing	WB2114
22	Spindle bearing	WB2115
23	Ball thrust bearing	WB2114
24	Compression spring	WB2116
25	Self lock nut	WB2117
26	Inner tube cap assy FF	WB2119
27	Grease fitting	WB2120
28	Steel ball (3/4")	WB2121
29	Check valve body	WB2123
30	Inner tube 5'	ITB2125
30	Inner tube 10'	ITB2130
31	Stop ring	WB32132
32	Core lifter	WB32133
33	Core lifter case	WB32131
34	Locking coupling standard	WB2134
35	Adaptor coupling	WB2135
36	Landing ring	WB2136
37	Outer tube 5'	OTB2145
37	Outer tube 10'	OTB2150
38	Inner tube stabilizer	WB2139
39	Thread protector	WB2140
40	"O" ring	WB32126
41	Piston	WB32127
42	Split tube 5'	WB32128
43	Split tube 10'	WB32129
44	Piston plug	WBNH2138
45	Adapter	WB32137



# WIRELINE CORE BARREL

## TRIPLE TUBE SIZE N

### ASSEMBLIES

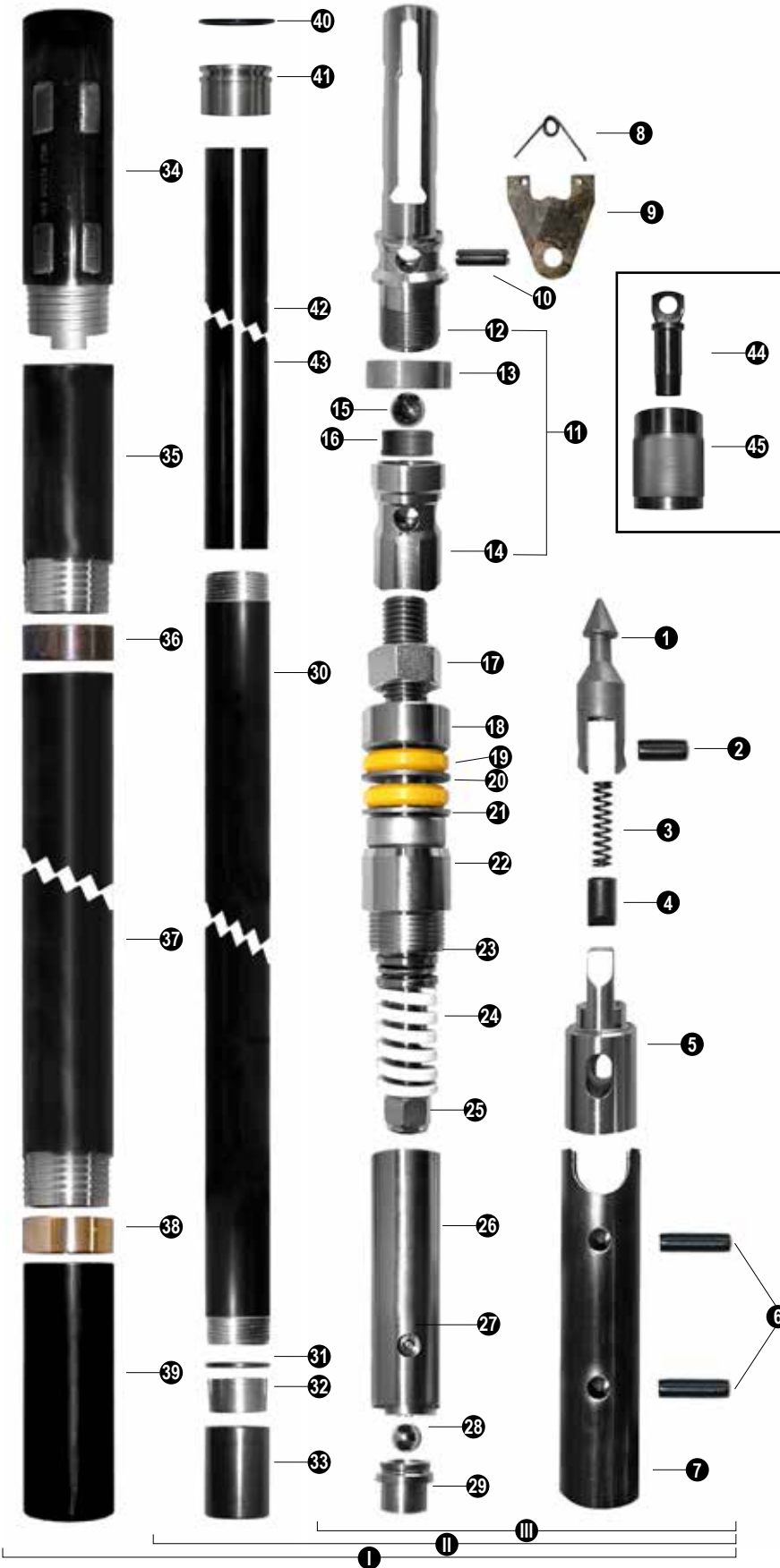
Group	Description	Part No	Weight	
			lb	kg
I	Core Barrel Assy FF 5' 10'	WN30205	89.70	40.7
		WN30210	138.00	62.4
II	Inner Tube Assy FF 5' 10'	WN31205	34.40	15.6
		WN31210	47.00	21.3
III	Head Assy FF	WN2002	20.13	9.1

1	Spearhead point	WBNH2201
2	Spiral pin (7/16" X 1")	WBNH2205
3	Compression spring	WBNH2202
4	Detent plunger	WBNH2203
5	Spearhead base	WN2804
6	Spring pin (2) (1/2" x 2")	WN2103
7	Latch retracting case	WN2206
8	Latch spring	WN2104
9	Latch (2)	WN2105
10	Spring pin (1/2" x 1 1/2")	WN2106
11	Latch body assy	WN2909
12	Upper body	WN2909-1
13	Landing shoulder	WN2909-2
14	Lower body	WN2909-3
15	Steel ball 22 mm	WBNH2909-4
16	Landing indicator bushing	WBNH2909-5
17	Lock nut	WN2110
18	Spindel assy	WN2111
19	Shut-off valve (2)	WN2112U
20	Valve adjusting washer (2)	WN2113
21	Ball thrust bearing	WN2114
22	Spindle bearing c/w brass bushing Also available with Regular Spindle bearing (see Options)	WN2115M
23	Hanger bearing	WN2124
24	Compression spring	WN2116
25	Self lock nut	WN2117
26	Inner tube cap assy FF	WN2119
27	Grease fitting	WB2120
28	Steel ball (7/8")	WN2121
29	Check valve body	WN2123
30	Inner tube 5'	ITN2125
30	Inner tube 10'	ITN2130
31	Stop ring	WN32132
32	Core lifter	WN32133
33	Core lifter case	WN32131
34	Locking coupling standard	WN2134
35	Adaptor coupling	WN2135
36	Landing ring	WN2136
37	Outer tube 5'	OTN2145
37	Outer tube 10'	OTN2150
38	Inner tube stabilizer	WN2139
39	Thread protector	WN2140
40	"O" ring	WN32126
41	Piston	WN32127
42	Split tube 5'	WN32128
43	Split tube 10'	WN32129
44	Piston plug	WBNH2138
45	Adapter	WN32137

### OPTION

WN2115

N SPINDLE BEARING



# WIRELINE CORE BARREL

## TRIPLE TUBE SIZE H

### ASSEMBLIES

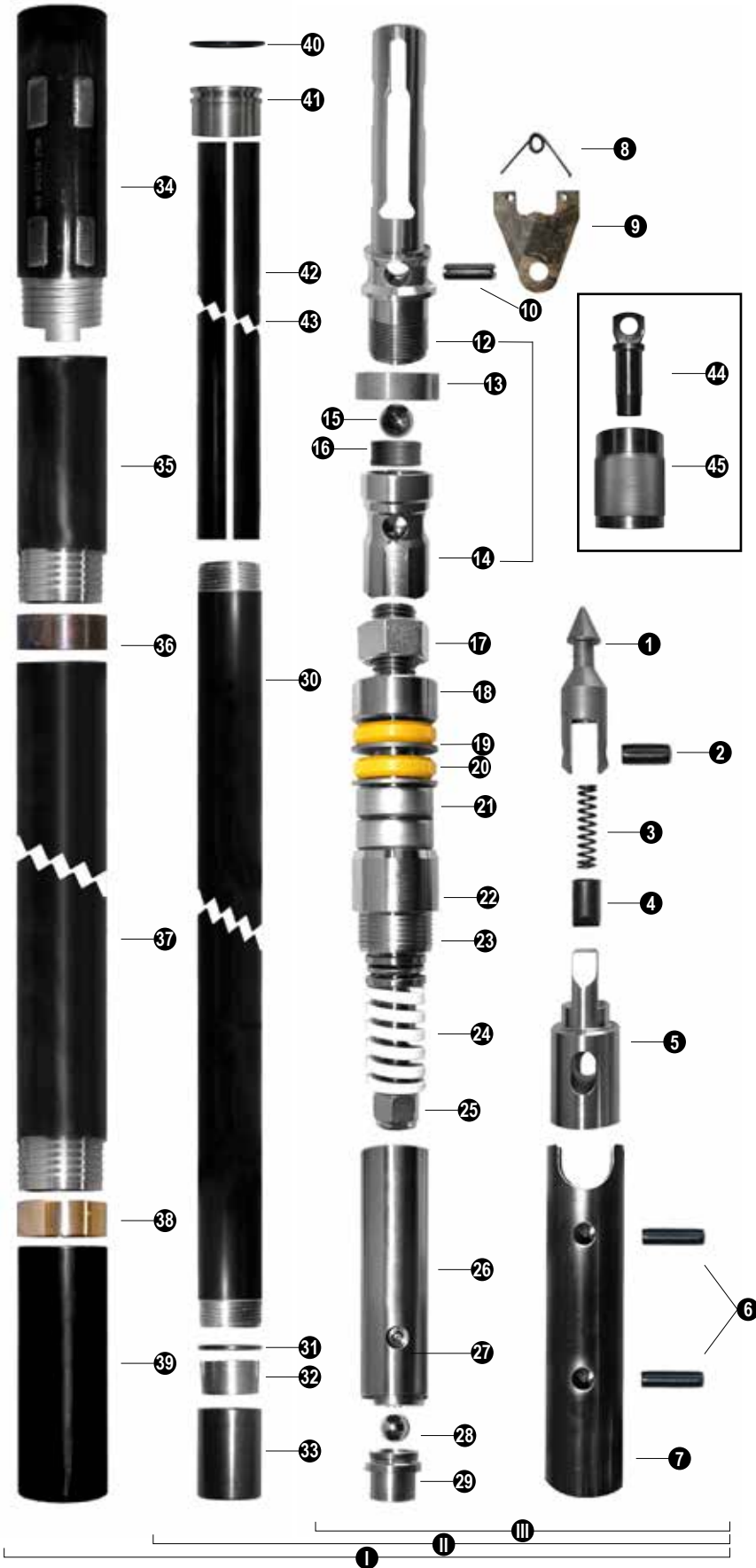
Group	Description	Part No	Weight lb	kg
I	Core Barrel Assy FF 5' 10'	WH30205	145.00	65.9
		WH30210	214.50	97.2
II	Inner Tube Assy FF 5' 10'	WH31205	60.50	27.4
		WH31210	79.00	35.8
III	Head Assy FF	WH2002	41.25	18.7

1	Spearhead point	WBNH2201
2	Spiral pin (7/16" X 1")	WBNH2205
3	Compression spring	WBNH2202
4	Detent plunger	WBNH2203
5	Spearhead base	WH2804
6	Spring pin (2) (1/2" x 2 3/4")	WH2103
7	Latch retracting case	WH2206
8	Latch spring	WH2104
9	Latch (2)	WH2105
10	Spring pin (1/2" x 2")	WN2103
11	Latch body assy	WH2909
12	Upper body	WH2909-1
13	Landing shoulder	WH2909-2
14	Lower body	WH2909-3
15	Steel ball 22 mm	WBNH2909-4
16	Landing indicator bushing	WBNH2909-5
17	Lock nut	WH2110
18	Spindel assy	WH2111
19	Shut-off valve (2)	WH2112U
20	Valve adjusting washer (2)	WH2113
21	Ball thrust bearing (2)	WH2114
22	Spindle bearing c/w brass bushing Also available with Regular Spindle bearing (see Option)	WH2115M
23	Ball thrust bearing	WN2114
24	Compression spring	WH2116
25	Self lock nut	WH2117
26	Inner tube cap assy FF	WH2119
27	Grease fitting	WB2120
28	Steel ball (7/8)	WN2121
29	Check valve body	WN2123
30	Inner tube 5'	ITH2125
30	Inner tube 10'	ITH2130
31	Stop ring	WH32132
32	Core lifter	WH32133
33	Core lifter case	WH32131
34	Locking coupling standard	WH2134
35	Adaptor coupling	WH2135
36	Landing ring	WH2136
37	Outer tube 5'	OTH2145
37	Outer tube 10'	OTH2150
38	Inner tube stabilizer	WH2139
39	Thread protector	WH2140
40	"O" ring	WH32126
41	Piston	WH32127
42	Split tube 5'	WH32128
43	Split tube 10'	WH32129
44	Piston plug	WBNH2138
45	Adapter	WH32137

### OPTION

WH2115

H SPINDLE BEARING



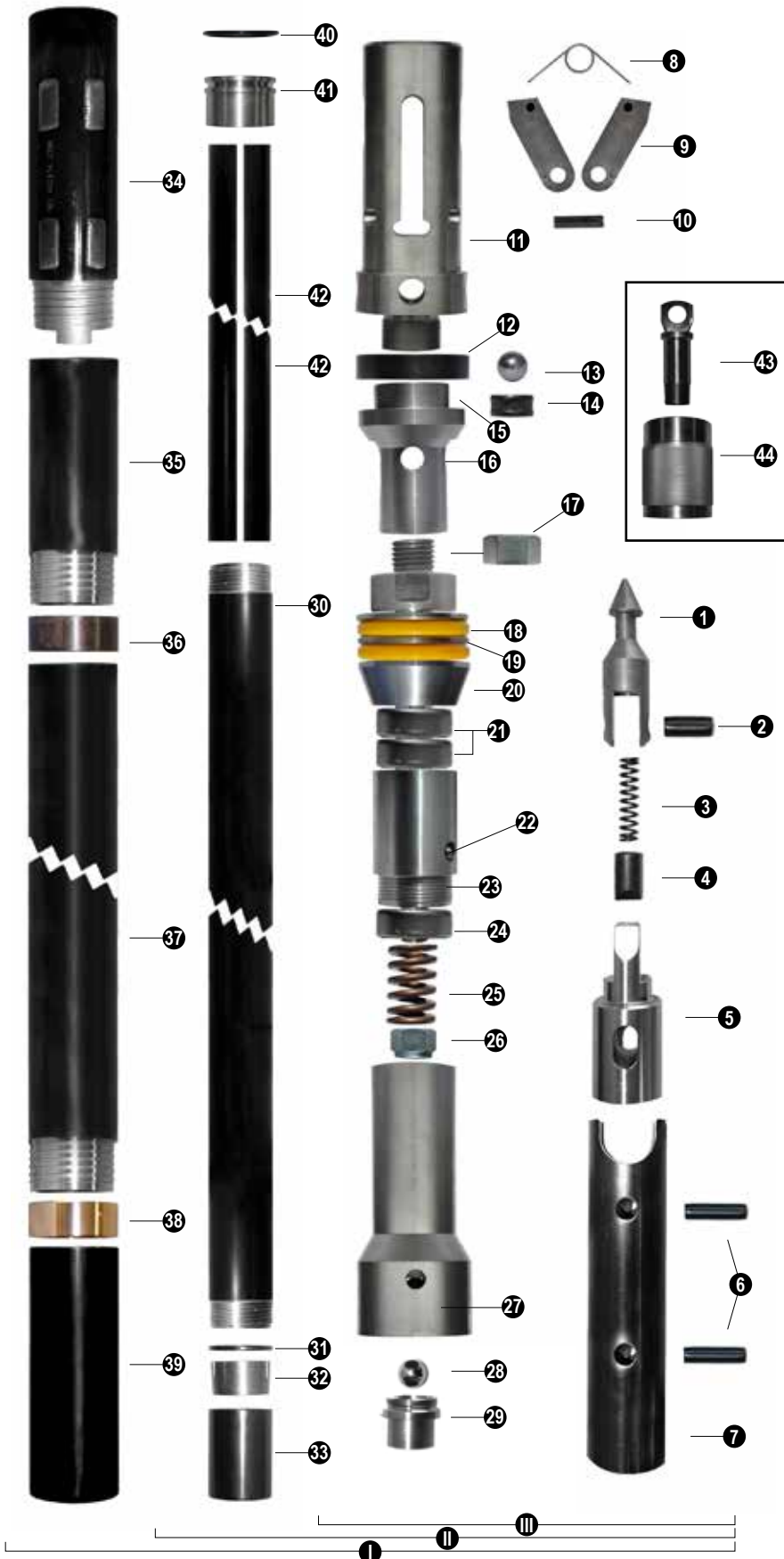
# WIRELINE CORE BARREL

## TRIPLE TUBE SIZE P

### ASSEMBLIES

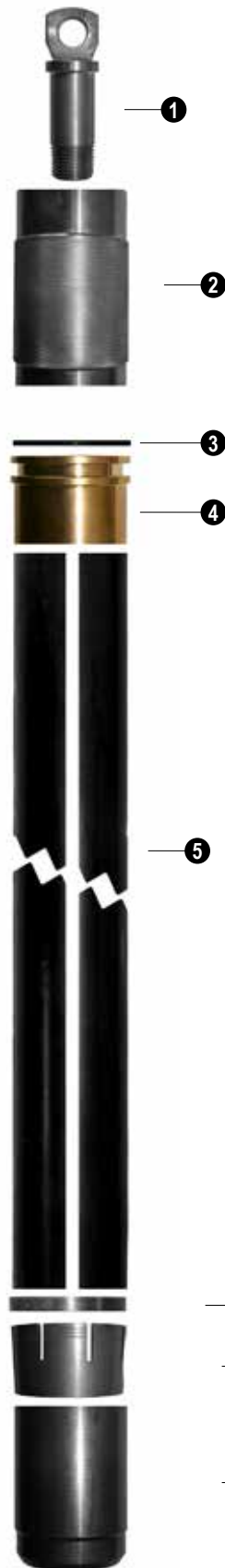
Group	Description	Part No	Weight lb	kg
I	Core Barrel Assy FF	WP30205	211	95.7
	5' 10'	WP30210	304	138
II	Inner Tube Assy FF	WP31205	95	43.1
	5' 10'	WP31210	121	54.9
III	Head Assy FF	WP2002	66	29.9

1	Spearhead Point	WP2201
2	Spirol Pin (3/4" x 2")	WP2205
3	Spearhead Compression Spring	WP2202
4	Detent Plunger	WP2203
5	Spearhead Base	WP2204
6	Spirol Pin (20mm x 100mm)	WP2103
7	Latch Retracting Case	WP2206
8	Latch Spring	WP2104
9	Latch (2)	WP2105
10	Spring Pin (1/2" x 2") (2)	WN2103
11	Upper Latch Body	WP2909-1
12	Landing shoulder	WP2909-2
13	Stell Ball 22mm	WBNH2909-4
14	Landing Indicator Bushing	WBNH2909-5
15	Spindle Assy	WP2111
16	Lower Latch Body	WP2909-3
17	Lock Nut (1 1/2" - 6 NC)	WP2110
18	Shut off Valve (2)	WP2112-UNS
19	Valve Adjusting Washer (2)	WP2113
20	Washer Tapered	WP2119-CAP
21	Ball Thrust Bearing B13	WH2114
22	Grease Fitting	WB3120
23	Spindle Bearing	WP2115
24	Ball Thrust Bearing B9	WN2114
25	Spindle Compression Spring	WH2116
26	Self Lock Nut (1" - 8 NC)	WH2117
27	Inner Tube Cap Assy FF	WP2119
28	Steel Ball (7/8")	WN2121
29	Check Valve Body	WP2123
30	Inner Tube 5'	ITP2125
30	Inner Tube 10'	ITP2130
31	Stop Ring	WP32132
32	Core Lifter	WP32133
33	Core Lifter Case	WP32131
34	Locking coupling standard	WP2134-3
35	Adaptor coupling	WP2135-LY
36	Landing Ring	WP2136
37	Outer tube 5'	OTP2145
37	Outer tube 10'	OTP2150
38	Inner tube stabilizer	WP2139
39	Thread protector	WP2140
40	"O" ring	WP32126
41	Piston	WP32127
42	Split tube 5'	WP32128
42	Split tube 10'	WP32129
43	Piston plug	WPNH2138
44	Adapter	WP32137



# SPLIT TUBE CONVERSION KITS SURFACE

## W3



### ASSEMBLIES

Group	Part No 5'	Weight		Part No	Weight	
		lb	kg		lb	kg
B 3	WB31905	5.74	2.6	WB31910	9.74	4.4
N 3	WN31905	9.07	4.1	WN31910	14.07	6.4
H 3	WH31905	13.11	5.9	WH31910	18.11	8.2
HW 3	WP31905	15.01	6.8	WP31910	20.01	9.1
P 3	WP31905	15.01	6.8	WP31910	20.01	9.1

1	Piston plug :	B 3 :	WBNH2138
		N 3 :	WBNH2138
		H 3 :	WBNH2138
		HW 3 :	WBNH2138
		P 3 :	WBNH2138

2	Adapter :	B 3 :	WB32137
		N 3 :	WN32137
		H 3 :	WH32137
		HW 3 :	WP32137
		P 3 :	WP32137

3	"O" ring :	B 3 :	WB32126
		N 3 :	WN32126
		H 3 :	WH32126
		HW 3 :	WP32126
		P 3 :	WP32126

4	Piston :	B 3 :	WB32137
		N 3 :	WN32127
		H 3 :	WH32127
		HW 3 :	WP32127
		P 3 :	WP32127

5	Split tube : 5'	B 3 :	WB32128
		N 3 :	WN32128
		H 3 :	WH32128
		HW 3 :	WP32128
		P 3 :	WP32128

5	Split tube : 10'	B 3 :	WB32129
		N 3 :	WN32129
		H 3 :	WH32129
		HW 3 :	WP32129
		P 3 :	WP32129

6	Stop ring :	B 3 :	WB32132
		N 3 :	WN32132
		H 3 :	WH32132
		HW 3 :	WP32132
		P 3 :	WP32132

7	Core lifter :	B 3 :	WB32133
		N 3 :	WN32133
		H 3 :	WH32133
		HW 3 :	WP32133
		P 3 :	WP32133

8	Core lifter case :	B 3 :	WB32131
		N 3 :	WN32131
		H 3 :	WH32131
		HW 3 :	WP32131
		P 3 :	WP32131

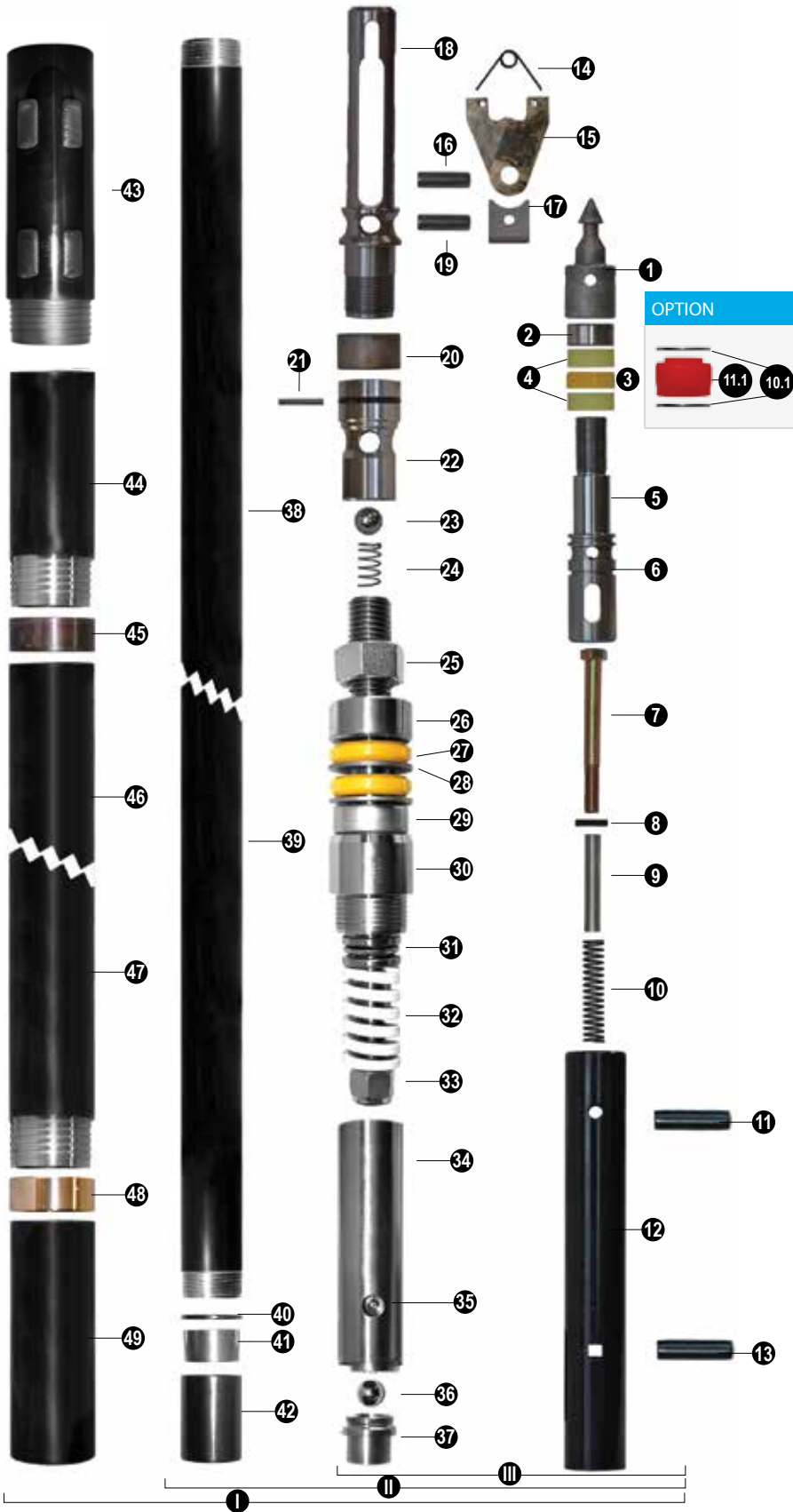




We manufacture and resell all the consumable parts for the head assemblies and the core barrels from a to h.

# WIRELINE CORE BARREL UNDERGROUND

"Knuckle Head" Size : BU



## ASSEMBLIES

Group	Description	Part No	Weight	
			lb	kg
I	Core Barrel Assy 5' 10'	WBU0105	62.00	28.1
		WBU0110	97.00	44.0
II	Inner Tube 5' 10'	WBU1105	26.00	11.8
		WBU1110	35.00	15.9
III	Head Assy	WBU2001	18	8.2

1	Spearhead point	WBU2101
2	Lock nut	OB2152
3	Piston packing	WBU2153
4	Backup washer (4)	WBU2154
5	"O" ring	WBU2155
6	Spearhead Body	WBU2151
7	Bolt hexagon head	WBU2146
8	Washer	WBU2142
9	Spring guide	WBU2143
10	Compression spring	OB2144
11	Spring pin ( 1/2 x 2)	WB2103
12	Latch retracting case	WBU2102
13	Square pin	WBU2147
14	Latch spring	WB2104
15	Latch (2)	WBU2105
16	Spring pin (1/2 x 1 1/2')	WB2106
17	Latch support	WB2107
18	Upper Latch body	WBU2109-1
19	Spring pin ( 1/4' x 1 1/2')	WB2108
20	landing shoulder	WB2109-2
21	"O" ring	WBU2148
22	lower latch body	WBU2109-3
23	Ball (15/16')	WB2121
24	Ball check spring	OA2149
25	Lock nut	WB2110
26	Spindel assy	WB2111
27	Shut-off valve (2)	WBU2112U
28	Valve adjusting washer (2)	WB2113
29	Ball thrust bearing	WB2114
30	Spindle bearing	WB2115
31	Ball thrust bearing	WB2114
32	Compression spring	WB2116
33	Self lock nut	WB2117
34	Inner tube cap assy FF	WB2119
35	Grease fitting	WB2120
36	Steel ball (3/4")	WB2121
37	Check valve body	WBU2123
38	Inner tube 5'	ITB2125
39	Inner tube 10'	ITB2130
40	Stop ring	WB2132
41	Core lifter	WB2133
42	Core lifter case	WB2131
43	Locking coupling standard	WBU2134
44	Drive coupling	WBU2135
45	Landing ring	WB2136
46	Outer tube 5'	OTB2145
47	Outer tube 10'	OTB2150
48	Inner tube stabilizer	WB2139
49	Thread protector	WB2140

# OVERSHOT UNDERGROUND

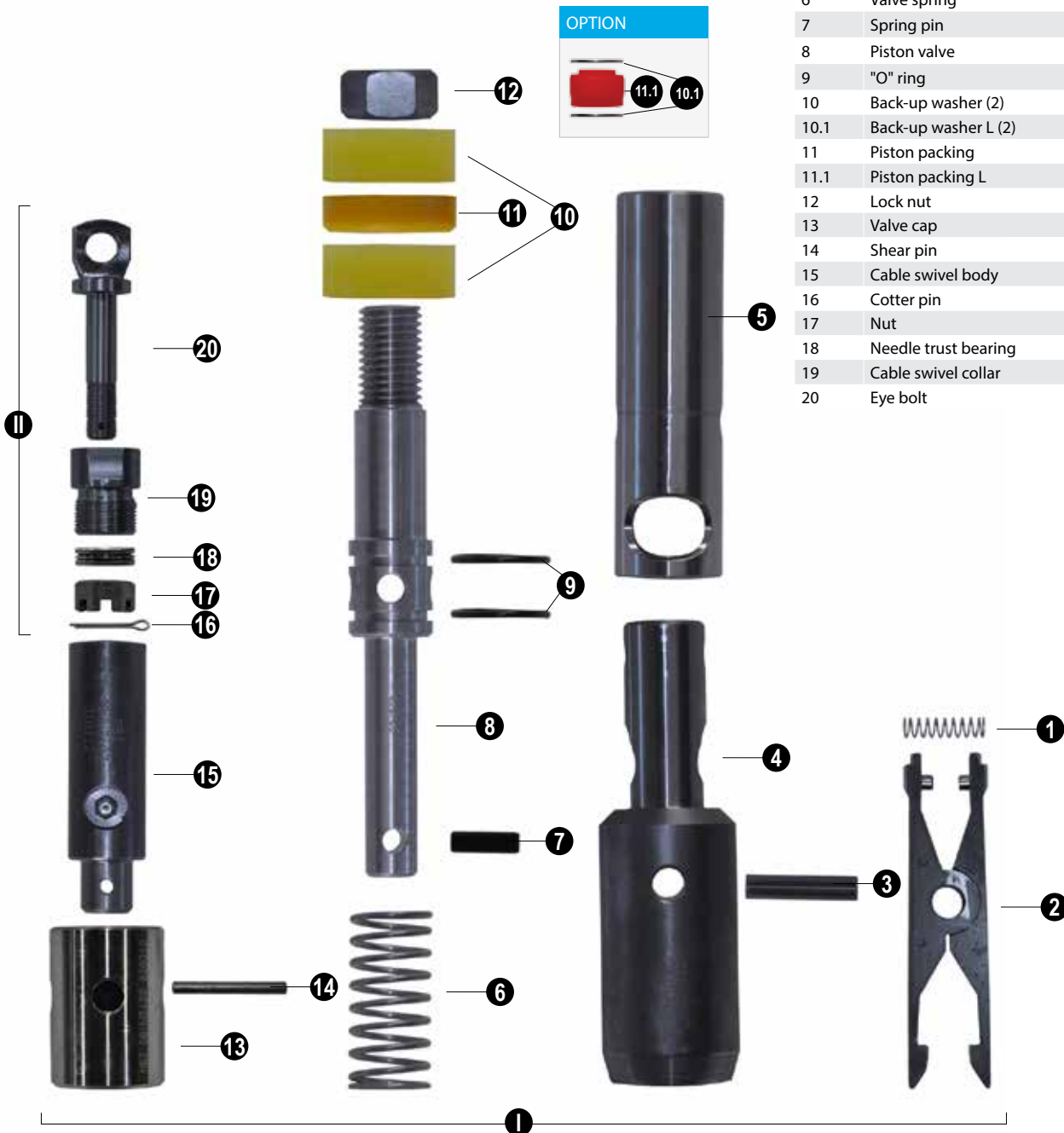
Size : B

## ASSEMBLIES

Group	Description	Part No	Weight	
			lb	kg
I	Overshot Assy	OBU3000	8	3,6
II	Cable swivel	OBNH3121	1,15	0,5

1	Lifting dog spring	OBNU3116
2	Lifting dog	OBNU3119
3	Lifting dog pivot pin	OBU3117
4	Overshot head	OBU3115
5	Valve body	OBNU3131
6	Valve spring	OBNU3130
7	Spring pin	WB2106
8	Piston valve	OBU3129
9	"O" ring	WBU2155
10	Back-up washer (2)	WBU2154
10.1	Back-up washer L (2)	WBU2154L
11	Piston packing	WBU2153
11.1	Piston packing L	WBU2153L
12	Lock nut	OBNU3124
13	Valve cap	OBNU3123
14	Shear pin	OBNU3113
15	Cable swivel body	OBNHU3107
16	Cotter pin	OBNH3106
17	Nut	OBNH3105
18	Needle trust bearing	OBNH3104
19	Cable swivel collar	OBNH3103
20	Eye bolt	OBNH3102

### OPTION



# OVERSHOT UNDERGROUND

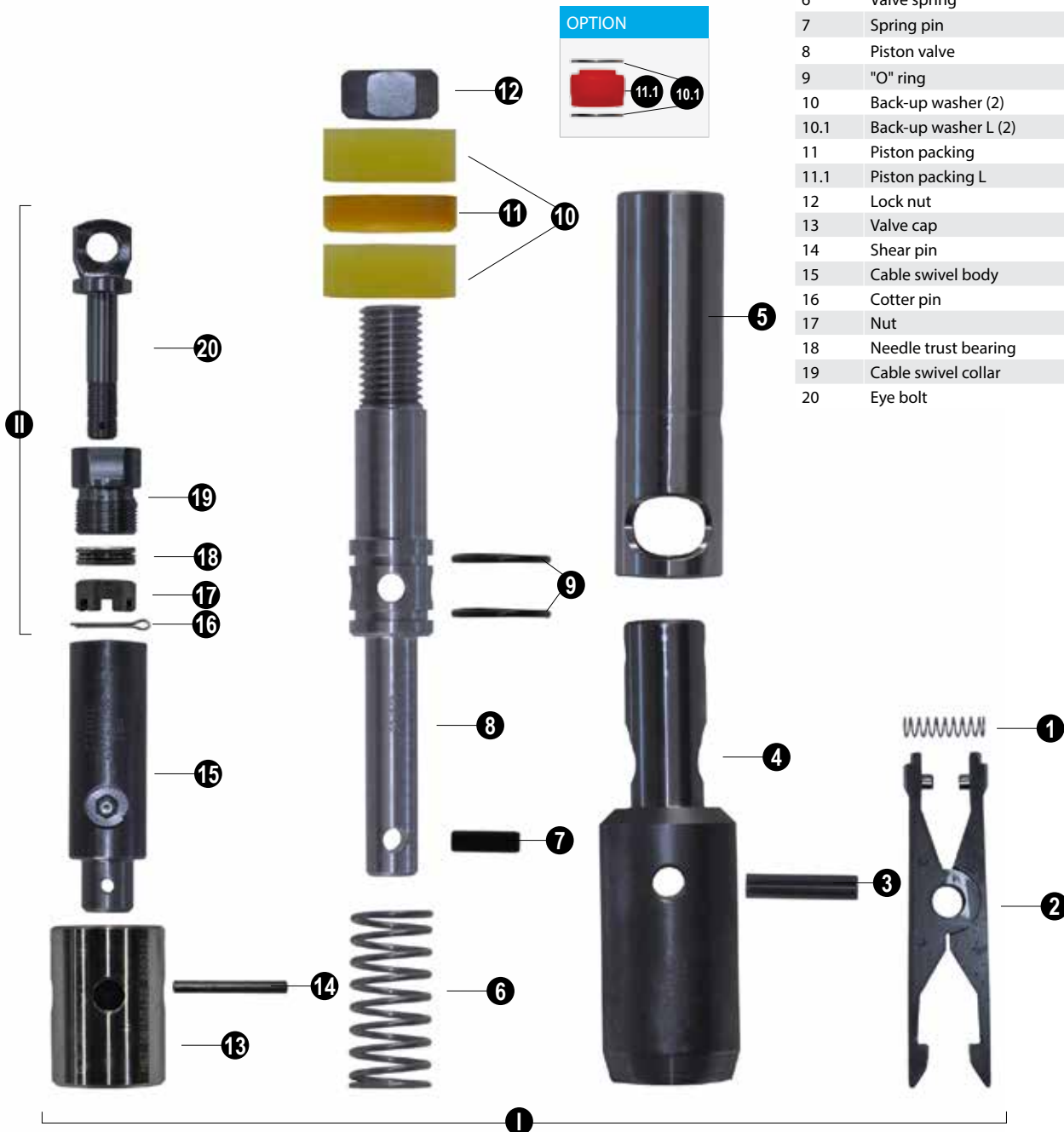
Link Latch Size : B

## ASSEMBLIES

Group	Description	Part No	Weight	
			lb	kg
I	Link Latch	OBU2800	8	3,6
II	Cable swivel	OBNH3121	1,15	0,5

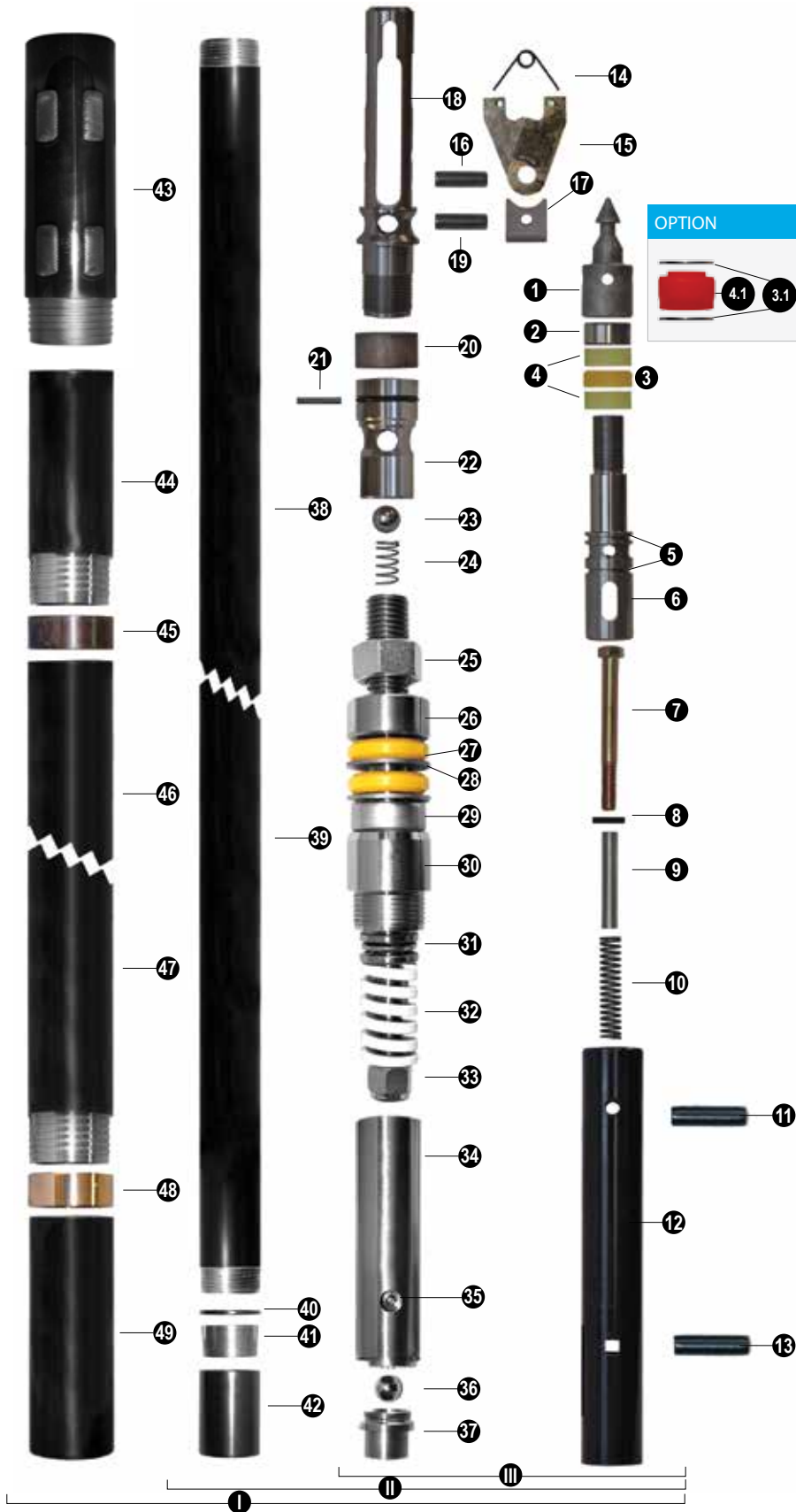
1	Lifting dog spring	OBNU3116
2	Lifting dog	OBNU3119
3	Lifting dog pivot pin	OBU3117
4	Overshot head	OBU2815
5	Valve body	OBNU3131
6	Valve spring	OBNU3130
7	Spring pin	WB2106
8	Piston valve	OBU3129
9	"O" ring	WBU2155
10	Back-up washer (2)	WBU2154
10.1	Back-up washer L (2)	WBU2154L
11	Piston packing	WBU2153
11.1	Piston packing L	WBU2153L
12	Lock nut	OBNU3124
13	Valve cap	OBNU3123
14	Shear pin	OBNU3113
15	Cable swivel body	OBNHU3107
16	Cotter pin	OBNH3106
17	Nut	OBNH3105
18	Needle trust bearing	OBNH3104
19	Cable swivel collar	OBNH3103
20	Eye bolt	OBNH3102

### OPTION



# WIRELINE CORE BARREL UNDERGROUND

'Knuckle Head' Size : N



## ASSEMBLIES

Group	Description	Part No	Weight lb kg	
I	Core Barrel Assy 5' 10'	WNU0105	96.00	40.7
		WNU0110	144.00	65.4
II	Inner Tube 5' 10'	WNU1105	41.00	18.6
		WNU1110	54.00	24.5
III	Head Assy	WNU2001	28.00	12.7

1	Spearhead point	WNU2101
2	Lock nut	WNU2152
3	Piston packing	WNU2153
3.1	Piston packing L	WNU2153L
4	Backup wascher (2)	WNU2154
4.1	Backup washer L (2)	WNU2154L
5	"O" ring (2)	WNU2155
6	Spearhead Body	WNU2151
7	Bolt hexagon head	WNU2146
8	Washer	WNU2142
9	Spring guide	WNU2143
10	Compression spring	WNU2144
11	Spring pin ( 1/2 x 2)	WN2103
12	Latch retracting case	WNU2102
13	Square pin	WNU2147
14	Latch spring	WN2104
15	Latch (2)	WNU2105
16	Spring pin (1/2 x 1 1/2')	WN2106
17	Latch support	WN2107
18	Upper Latch body	WNU2109-1
19	Spring pin ( 1/4 x 1 1/2')	WN2108
20	landing shoulder	WNU2109-2
21	"O" ring	WNU2148
22	Lower latch body	WNU2109-3
23	Ball (15/16')	WN2121
24	Ball check spring	ONU2149
25	Lock nut	WN2110
26	Spindel assy	WN2111
27	Shut-off valve (2)	WN2112U
28	Valve adjusting washer (2)	WN2113
29	Ball thrust bearing	WN2114
30	Spindle bearing c/w brass bushing Also available with Regular Spindle bearing (see Option)	WNU2115M
31	Hanger bearing	WN2124
32	Compression spring	WN2116
33	Self lock nut	WN2117
34	Inner tube cap assy FF	WN2119
35	Grease fitting	WN2120
36	Steel ball (3/4")	WN2121
37	Check valve body	WN2123
38	Inner tube 5'	ITN2125
39	Inner tube 10'	ITN2130
40	Stop ring	WN2132
41	Core lifter	WN2133
42	Core lifter case	WN2131
43	Locking coupling standard	WNU2134
44	Drive coupling	WNU2135
45	Landing ring	WN2136
46	Outer tube 5'	OTN2145
47	Outer tube 10'	OTN2150
48	Inner tube stabilizer	WN2139
49	Thread protector	WN2140

## OPTION

WNU2115

N SPINDLE BEARING



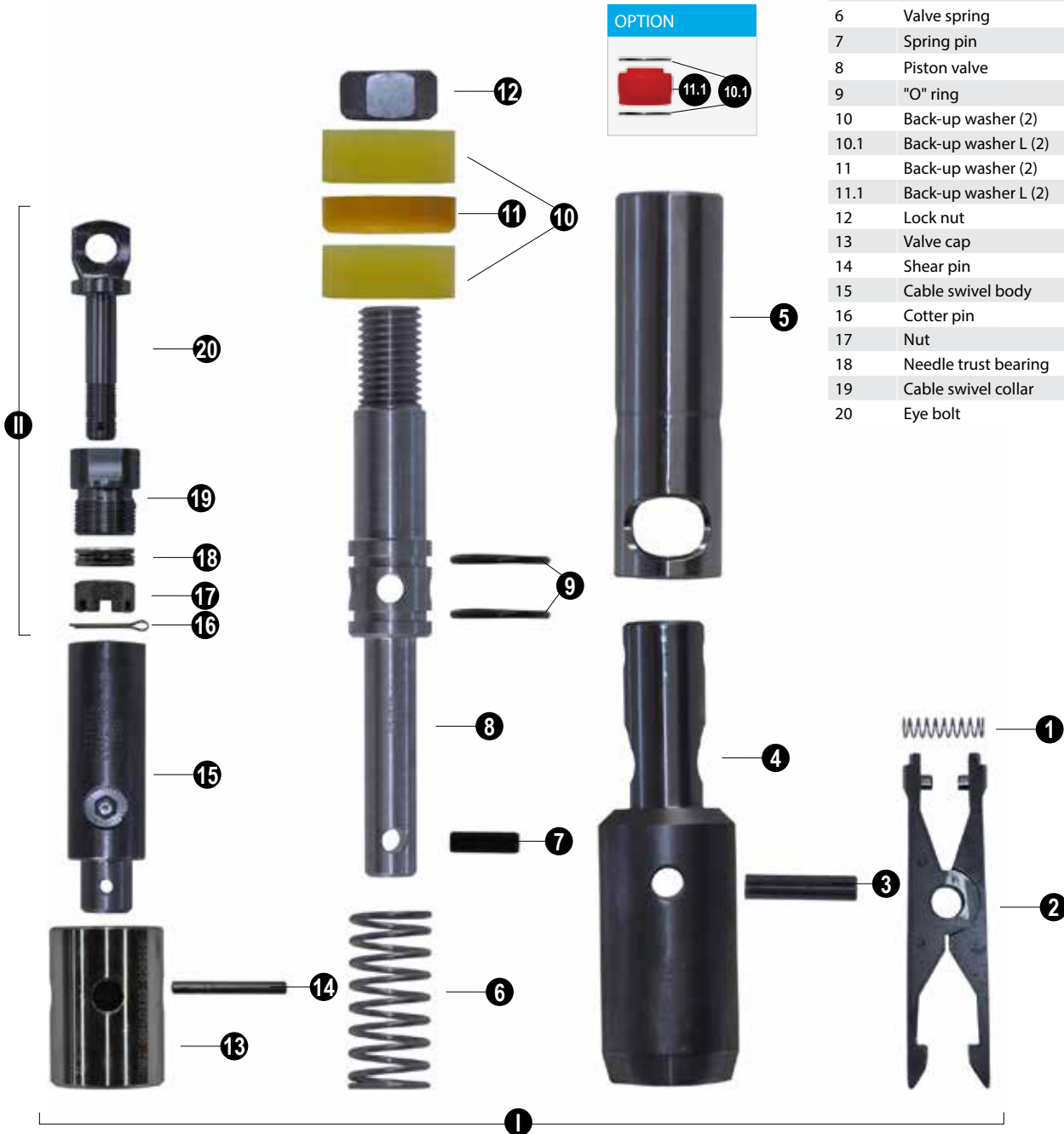
# OVERSHOT UNDERGROUND

Size : N

## ASSEMBLIES

Group	Description	Part No	Weight	
			lb	kg
I	Overshot Assy	ONU3000	9,6	4,4
II	Cable swivel	OBNH3121	1,15	0,5

1	Lifting dog spring	OBNU3116
2	Lifting dog	OBNU3119
3	Lifting dog pivot pin	ON3117
4	Overshot head	ONU3115
5	Valve body	OBNU3131
6	Valve spring	OBNU3130
7	Spring pin	WB2106
8	Piston valve	ONU3129
9	"O" ring	OBNU2155
10	Back-up washer (2)	WNU2154
10.1	Back-up washer L (2)	WNU2154L
11	Back-up washer (2)	WNU2153
11.1	Back-up washer L (2)	WNU2153L
12	Lock nut	OBNU3124
13	Valve cap	OBNU3123
14	Shear pin	OBNU3113
15	Cable swivel body	OBNHU3107
16	Cotter pin	OBNH3106
17	Nut	OBNH3105
18	Needle trust bearing	OBNH3104
19	Cable swivel collar	OBNH3103
20	Eye bolt	OBNH3102



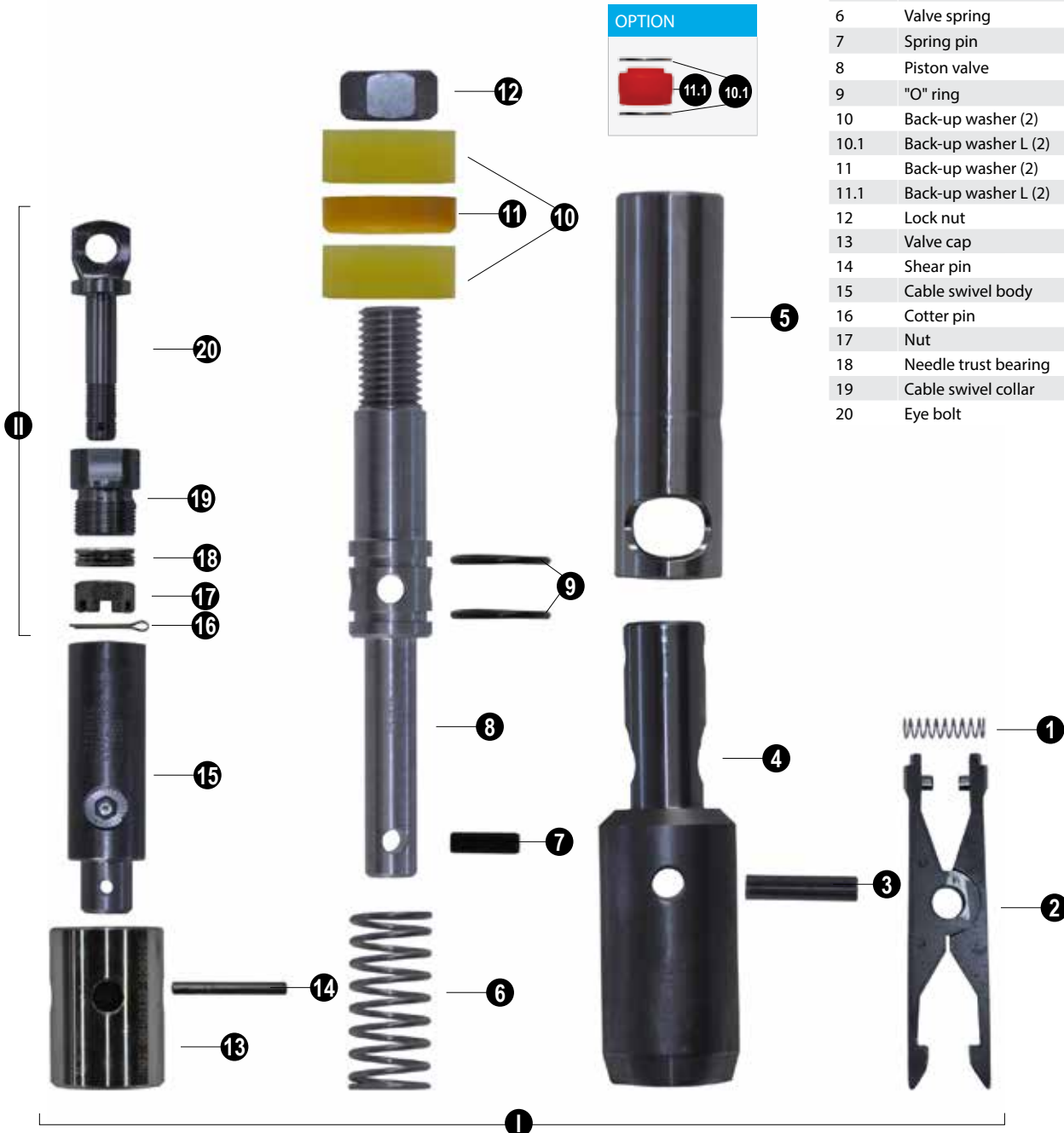
# OVERSHOT UNDERGROUND

Link Latch Size : N

## ASSEMBLIES

Group	Description	Part No	Weight	
			lb	kg
I	Link Latch	ONU2800	9,6	4,4
II	Cable swivel	OBNH3121	1,15	0,5

1	Lifting dog spring	OBNU3116
2	Lifting dog	OBNU3119
3	Lifting dog pivot pin	ON3117
4	Overshot head	ONU2815
5	Valve body	OBNU3131
6	Valve spring	OBNU3130
7	Spring pin	WB2106
8	Piston valve	ONU3129
9	"O" ring	OBNU2155
10	Back-up washer (2)	WNU2154
10.1	Back-up washer L (2)	WNU2154L
11	Back-up washer (2)	WNU2153
11.1	Back-up washer L (2)	WNU2153L
12	Lock nut	OBNU3124
13	Valve cap	OBNU3123
14	Shear pin	OBNU3113
15	Cable swivel body	OBNHU3107
16	Cotter pin	OBNH3106
17	Nut	OBNH3105
18	Needle trust bearing	OBNH3104
19	Cable swivel collar	OBNH3103
20	Eye bolt	OBNH3102

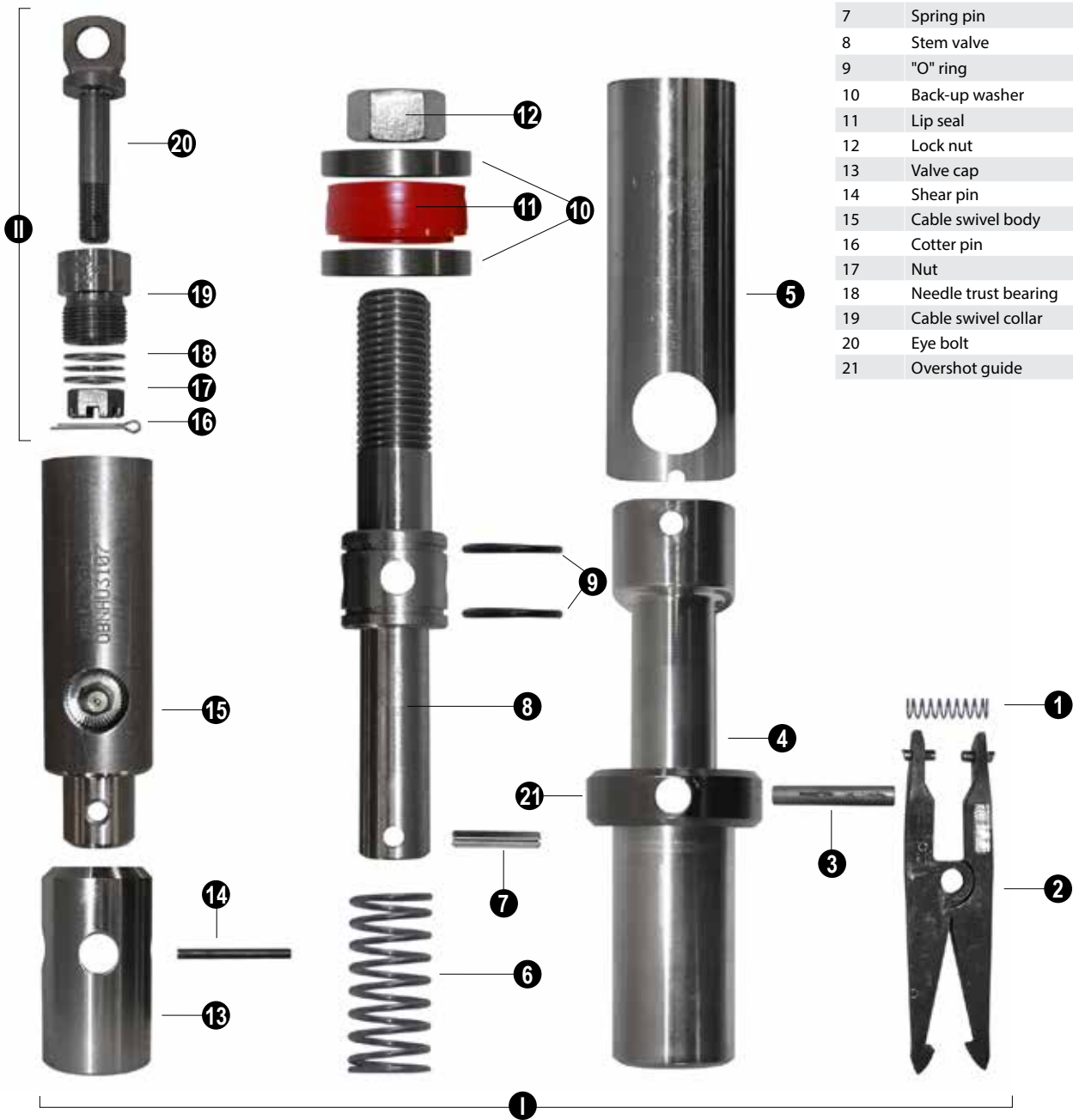


# OVERSHOT UNDERGROUND

Size : H

## ASSEMBLIES

Group	Description	Part No	Weight	
			lb	kg
I	Overshot Assy	OHU3000		
II	Cable Swivel	OBNH3121		
1	Lifting dog spring	OBNH3116		
2	Lifting dog	OHU3119		
3	Lifting dog pivot pin	OHU3117		
4	Overshot head	OHU3115		
5	Valve sleeve	OHU3131		
6	Spring	OHU3130		
7	Spring pin	WH2108		
8	Stem valve	OHU3129		
9	"O" ring	OHU2155		
10	Back-up washer	WHU2154		
11	Lip seal	WHU2153L		
12	Lock nut	WP2110		
13	Valve cap	OHU3123		
14	Shear pin	OHU3113		
15	Cable swivel body	OBNH3107		
16	Cotter pin	OBNH3106		
17	Nut	OBNH3105		
18	Needle trust bearing	OBNH3104		
19	Cable swivel collar	OBNH3103		
20	Eye bolt	OBNH3102		
21	Overshot guide	OHU3133		

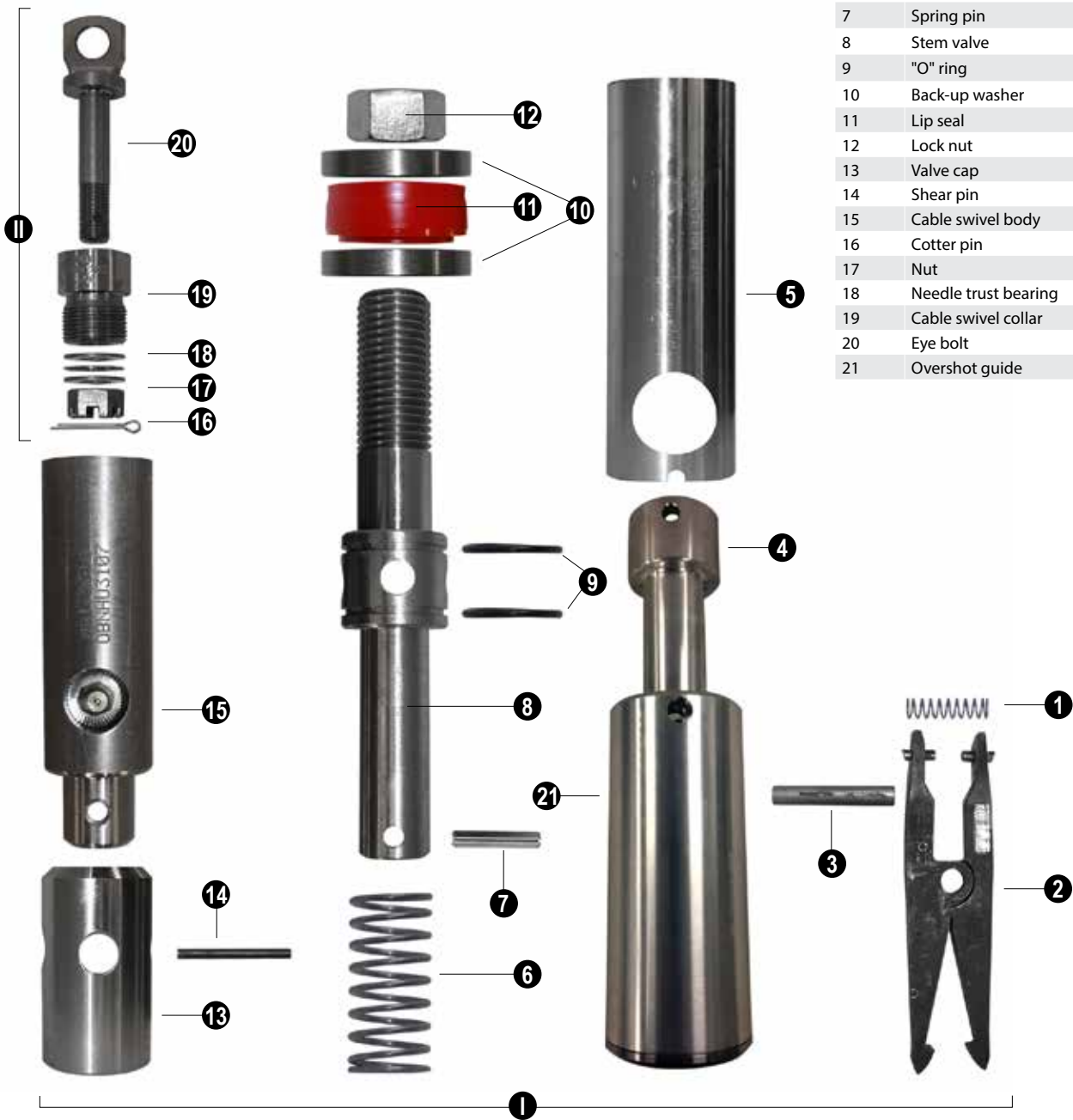


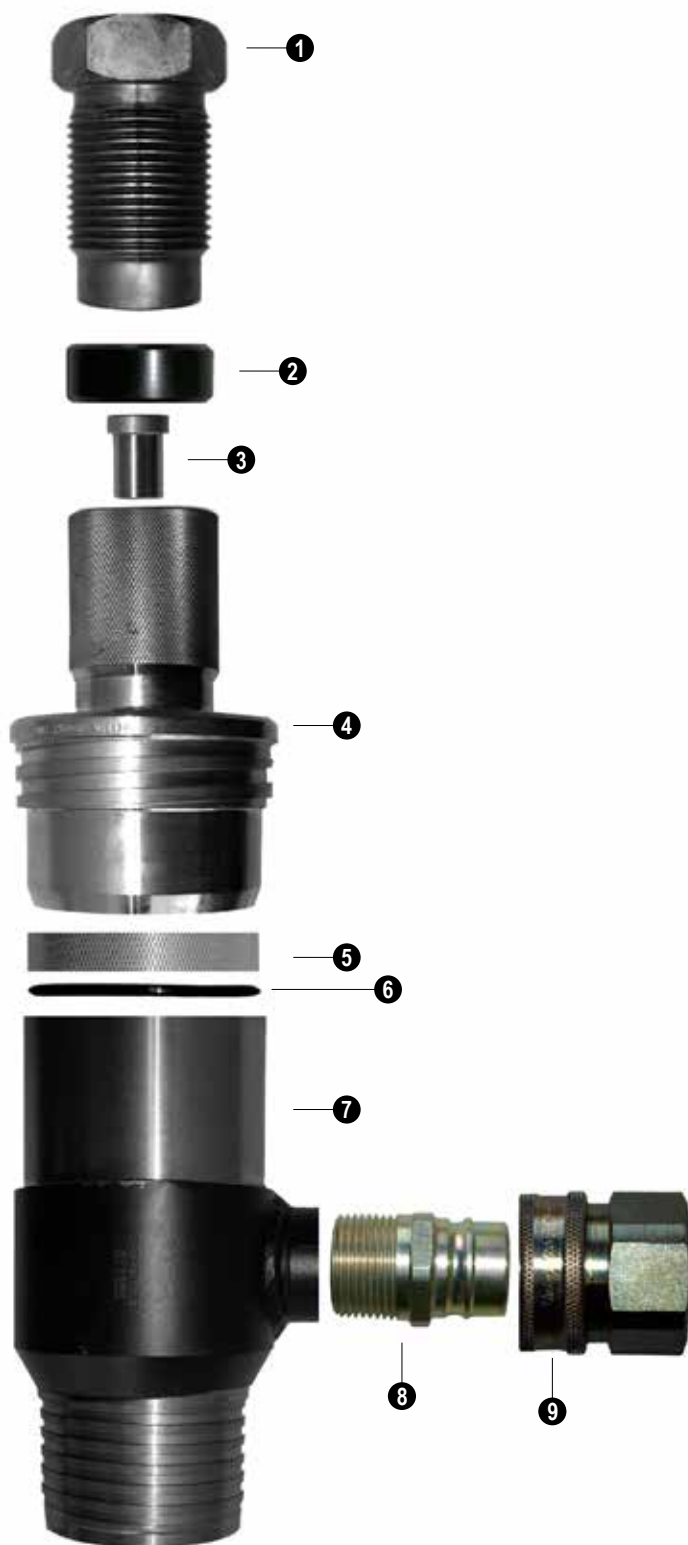
# OVERSHOT UNDERGROUND

Link Latch Size : H

## ASSEMBLIES

Group	Description	Part No	Weight	
			lb	kg
I	Link Latch	OHU2800		
II	Cable Swivel	OBNH3121		
1	Lifting dog spring	OBNH311L		
2	Lifting dog	OHU3119		
3	Lifting dog pivot pin	OHU3117		
4	Overshot head	OHU3115		
5	Valve sleeve	OHU3131		
6	Spring	OHU3130		
7	Spring pin	WH2108		
8	Stem valve	OHU3129		
9	"O" ring	OHU2155		
10	Back-up washer	WHU2154		
11	Lip seal	WHU2153L		
12	Lock nut	WP2110		
13	Valve cap	OHU3123		
14	Shear pin	OHU3113		
15	Cable swivel body	OBNH3107		
16	Cotter pin	OBNH3106		
17	Nut	OBNH3105		
18	Needle trust bearing	OBNH3104		
19	Cable swivel collar	OBNH3103		
20	Eye bolt	OBNH3102		
21	Overshot guide	OHU3116		





## ASSEMBLIES

Description	Part No	Weight	
		lb	kg
A-U (3/16")	WU4000	7.00	3.2
A-U (1/4")	WU4020	7.00	3.2
B-U (3/16")	WBU4000	8.58	3.9
B-U (1/4")	WBU4020	8.58	3.9
N-U (3/16")	WNU4000	10.90	5.0
N-U (1/4")	WNU4020	10.90	5.0
H-U (3/16")	WHU4000	12.70	5.8
H-U (1/4")	WHU4020	12.70	5.8

1	Packing plug (3/16") : Packing plug (1/4") :	A - U : B - U : N - U : H - U :	WBNHU4011 WBNHU4023
2	Cable packing (3/16") : Cable packing (1/4") :	All sizes : All sizes :	WBNHU4010 WBNHU4022
3	Bushing (3/16") : Bushing (1/4") :	All sizes : All sizes :	WBNHU4009 WBNHU4021
4	Packing house :	A - U : B - U : N - U : H - U :	WU4008 WBU4008 WNU4008 WH=U4008
5	Retainer latch :	A - U : B - U : N - U : H - U :	WU4003 WBU4003 WNU4003 WHU4003
6	"O" ring :	A - U : B - U : N - U : H - U :	WU2126 WBU4002 WNU4002 WHU4002
7	Loading chamber body :	A - U : B - U : N - U : H - U :	WU4004 WBU4004 WNU4004 WHU4004
8	Quick detach / male (2) :	All sizes :	WBNHU4006
9	Quick detach / female :	All sizes :	WBNHU4007





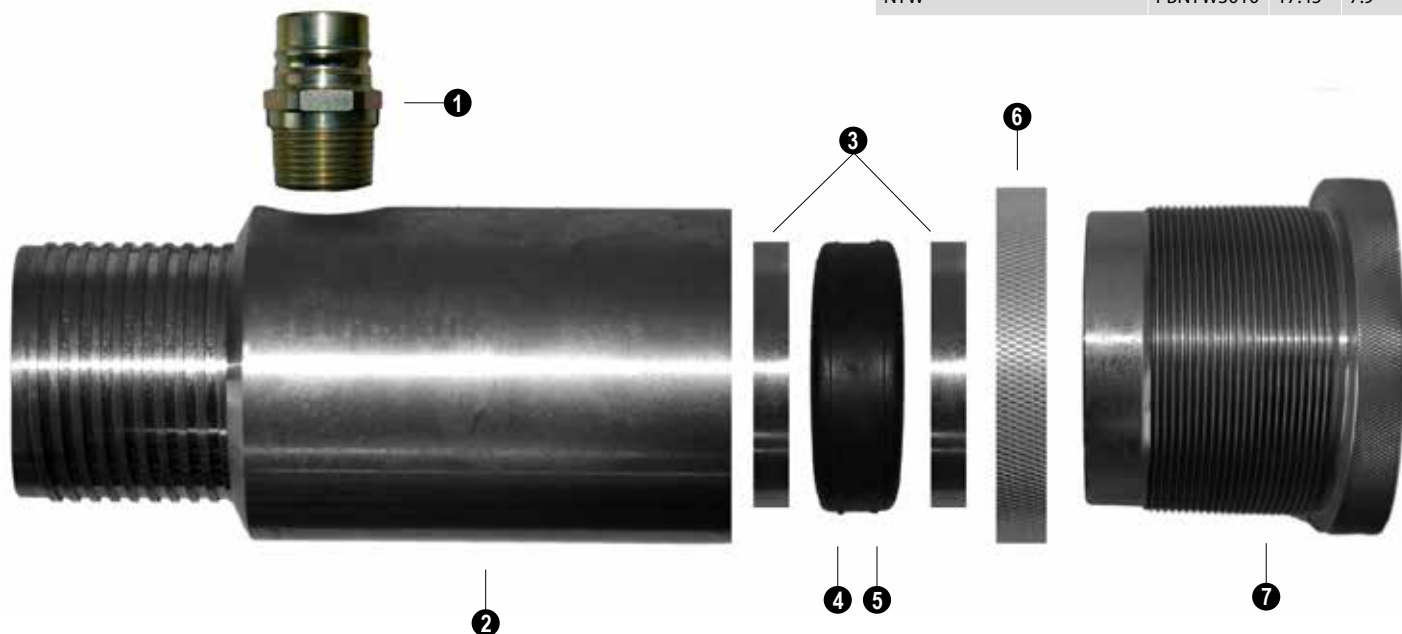
## ASSEMBLIES

Description	Part No	Weight	
		lb	kg
ATW-U (3/16")	WATWU4300	7.10	3.2
ATW-U (1/4")	WATWU4320	7.10	3.2
BTW-U (3/16")	WBTWU4300	8.14	3.7
BTW-U (1/4")	WBTWU4320	8.14	3.7
NTW-U (3/16")	WNTWU4300	8.75	4.0
NTW-U (1/4")	WNTWU4320	8.75	4.0

1	Packing plug (3/16") : Packing plug (1/4") :	ATW-U : BTW-U : NTW-U :	WBNHU4011 WBNHU4023
2	Cable packing (3/16") : Cable packing (1/4") :	All sizes : All sizes :	WBNHU4010 WBNHU4022
3	Bushing (3/16") : Bushing (1/4") :	All sizes : All sizes :	WBNHU4009 WBNHU4021
4	Packing house :	ATW-U : BTW-U : NTW-U :	WATWU4008 WBTWU4008 WNTWU4008
5	Retainer latch :	ATW-U : BTW-U : NTW-U :	WATWU4303 WBTWU4303 WNTWU4303
6	"O" ring :	ATW-U : BTW-U : NTW-U :	WA2126 WB4002 WN4002
7	Loading chamber body :	ATW-U : BTW-U : NTW-U :	WATWU4304 WBTWU4304 WNTWU4304
8	Quick detach / male (2) :	All sizes :	WBNHU4006
9	Quick detach / female :	All sizes :	WBNHU4007

## ASSEMBLIES

Description	Part No	Weight	
		lb	kg
Wireline Packing Box			
A	PBA3000	6.88	3.1
B	PBB3000	10.50	4.8
N	PBN3000	17.45	7.9
H	PBH3000	23.70	10.8
Wireline Thin Wall Packing Box			
ATW	PBA3000	6.88	3.1
BTW	PBBTW3010	10.50	4.8
NTW	PBNTW3010	17.45	7.9



## WIRELINE PACKING BOXES

1	Quick detach male	All sizes	WBNHU4006
2	Body	A	PBA3002
		B	PBB3002
		N	PBN3002
		H	PBH3002
3	Ring (2)	A	PBA3003
		B	PBB3003
		N	PBN3003
		H	PBH3003
4	Packing	A	PBA3004
		B	PBB3004
		N	PBN3004
5	Sash cord #8	H	PBH3004
6	Jam nut	B	PBB3001A
		N	PBN3001A
		H	PBH3001A
7	Nut	A	PBA3001
		B	PBB3001
		N	PBN3001
		H	PBH3001

## WIRELINE THIN WALL PACKING BOXES

1	Quick detach male	All sizes	WBNHU4006
2	Body	ATW	PBA3002
		BTW	PBB3002
		NTW	PBN3002
3	Ring (2)	ATW	PBA3003
		BTW	PBBTW3013
		NTW	PBNTW3013
4	Packing	ATW	PBA3004
		BTW	PBB3004
5	Sash cord #8	NTW	PBH3004
6	Jam nut	BTW	PBB3001A
		NTW	PBN3001A
7	Nut	ATW	PBA3001
		BTW	PBB3001
		NTW	PBNTW3011



**We offer the complete line of water swivels and hoisting plugs for all your drilling functions.**

- Compact water swivel
- Compact plus water swivel
- Compact plus water swivel new style
- Universal water swivel
- Water swivel underground
- High speed water swivel
- Hoisting plug "light"
- Hoisting plug "heavy duty"
- Hoisting plug "super duty"

# COMPACT WATER SWIVEL

## ASSEMBLY

Description	Part No	Weight	
		lb	kg
Compact Water Swivel Assy	WS1000	14.50	6.6
AW Rod Assy			

## Repair Kit Compact

WS1050 1.75 0.8

- "O" Rings - 3 sizes (6 of each size)
- Spring washer (2)
- "V" packing set (2)
- Wear sleeve (2)
- Ball bearing (1)
- Felt seal (2)

1	"O" ring	WS1011
2	Spindle	WS1021
3	"O" ring	WS1022
4	Ball bearing	WS1018
5	Body	WS1016
6	Grease fitting	WB2120
7	Felt seal	WS1020
8	Cap	WS1010
9	"O" ring	WS1013
10	Spring washer	WS1012
11	"V" packing set	WS1014
12	Wear sleeve	WS1015
13	Packing cage	WS1017



## SPINDLE EXTENSIONS

Description	Part No.
AW rod box	WS1123
A rod pin	WS1024
A rod box	WS1025
A rod pin	WS1026
B rod pin	WS1027
ATW rod pin	WS1028
BTW rod pin	WS1029
N rod pin	WS1030

# COMPACT PLUS WATER SWIVEL

## ASSEMBLY

Description	Part No	Weight	
		lb	kg
Compact Plus Water Swivel Assy	WS1100	16.70	7.6
AW Rod Box			

## Repair Kit

### Compact Plus

WS1150

- "O" Rings - 3 sizes (6 of each size)
- Spring washer (2)
- "V" packing set (2)
- Wear sleeve (2)
- Ball bearing (1)
- Felt seal (2)
- Ball bearing thrust (1)

1	"O" ring	WS1011
2	Spindle	WS1121
3	"O" ring	WS1022
4	Thrust bearing	WS1120
5	Body	WS1113
6	Grease fitting	WB2120
7	Felt seal	WS1020
8	Cap	WS1010
9	"O" ring	WS1013
10	Spring washer	WS1012
11	"V" packing set	WS1014
12	Wear sleeve	WS1015B
13	Packing cage	WS1017
14	Ball bearing	WS1018
15	Upper body	WS1112



## SPINDLE EXTENSIONS

Description	Part No.
AW rod box	WS1123
A rod pin	WS1024
A rod box	WS1025
A rod pin	WS1026
B rod pin	WS1027
ATW rod pin	WS1028
BTW rod pin	WS1029
N rod pin	WS1030



# COMPACT PLUS WATER SWIVEL 'NEW STYLE'



## ASSEMBLY

Description	Part No	Weight	
		lb	kg
Compact Plus Water Swivel Assy	WS1300	16.70	7.6
AW Rod Box			

## Repair Kit

### Compact Plus

WS1350

- "O" Rings - 3 sizes (6 of each size)
- Spring washer (2)
- "V" packing set (2)
- Wear sleeve (2)
- Ball bearing (1)
- Felt seal (2)
- Ball bearing thrust (1)

1	"O" ring	WS1011
2	Spindle	WS1321
3	Thrust bearing	WS1320
4	Body	WS1313
5	Grease fitting	WB2120
6	Felt seal	WS1020
7	Cap	WS1010
8	"O" ring	WS1013
9	Spring washer	WS1012
10	"V" packing set	WS1014
11	Wear sleeve	WS1015B
12	Packing cage	WS1017
13	Ball bearing	WS1018
14	Upper body	WS1312



## ASSEMBLY

Description	Part No	Weight	
		lb	kg
Universal Water Swivel Assy BW Rod Box	WS1500	31.50	14.3

## Repair Kit Universal

WS1550

- Ball bearing (1)
- Internal retaining ring (1)
- "O" Rings (1)
- Spindle extension (1)
- "V" packing set (1)
- Locking washer (1)
- Ball bearing thrust (1)

1	Retaining ring	WS1512
2	Ball bearing	WS1511
3	Spindle extension	WS1516
4	Spindle	WS1523
5	Thrust bearing	WS1524
6	Body	WS1522
7	Grease fitting	WB2120
8	Cap	WS1515
9	Compression spring	WS1514
10	"V" packing set	WS1517B
11	"O" ring	WS1513
12	Packing housing	WS1518
13	Spindle nut	WS1519
14	Locking washer	WS1520
15	Spacer	WS1521

## ROD ADAPTORS

Rod Pin	Standard Rod Pin	Part No.
A	BW	A3537007
B	BW	A3537107
N	BW	A3537207
H	BW	A3537307
P	BW	A3537407
HW	BW	A3537408
Thin Wall Rod Pin	Standard Rod Pin	Part No.
ATW	BW	A3566007
BTW	BW	A3566107
NTW	BW	A3566207

# COMPACT WATER SWIVEL UNDERGROUND

## ASSEMBLY

Description	Part No	Weight	
		lb	kg
Compact Water Swivel Assy	WS1000M	14.50	6.6
AW Rod Assy			

## Repair Kit Compact

WS1050 1.75 0.8

- "O" Rings - 3 sizes (6 of each size)
- Spring washer (2)
- "V" packing set (2)
- Wear sleeve (2)
- Ball bearing (1)
- Felt seal (2)

1	"O" ring	WS1011
2	Spindle	WS1021
3	"O" ring	WS1022
4	Ball bearing	WS1018
5	Body	WS1016M
6	Grease fitting	WB2120
7	Felt seal	WS1020
8	Cap	WS1010M
9	"O" ring	WS1013
10	Spring washer	WS1012
11	"V" packing set	WS1014
12	Wear sleeve	WS1015
13	Packing cage	WS1017



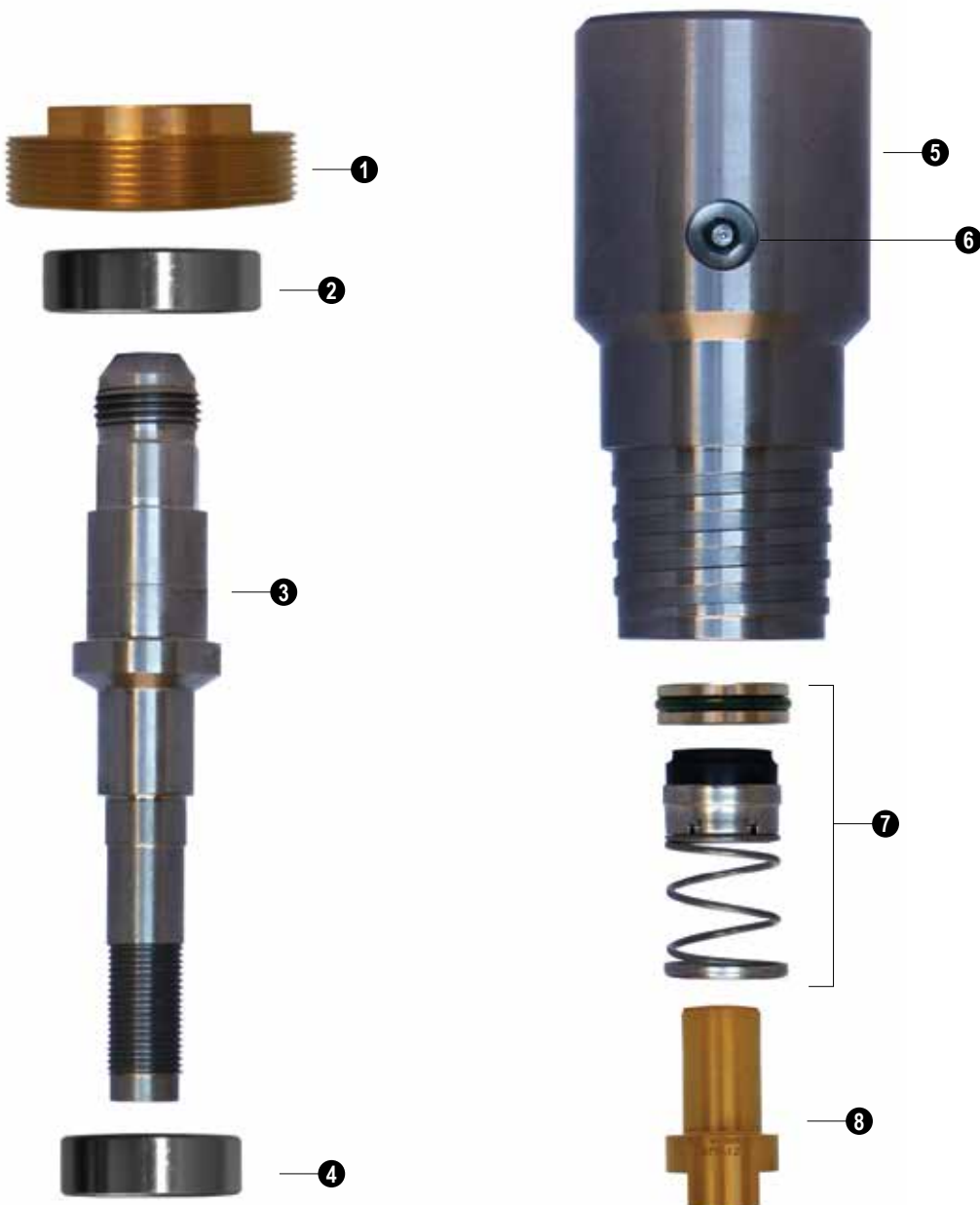
## SPINDLE EXTENSIONS

Description	Part No.
AW rod box	WS1123
A rod pin	WS1024
A rod box	WS1025
A rod pin	WS1026
B rod pin	WS1027
ATW rod pin	WS1028
BTW rod pin	WS1029
N rod pin	WS1030

# HIGH SPEED WATER SWIVEL

Dimensions : ATW / B / N / NT

	ATW WS6700-ATW	B WS0800-B	N WS0900-N	NT WS0900-NT
1 Swivel cap	WS0701	WS0701	WS0701	WS0701
2 Top Ball Bearing	WS0702	WS0702	WS0702	WS0702
3 Swivel Stem	WS0703B	WS0803B	WS0803B	WS0803B
4 Bottom ball bearing	WS0604	WS0804	WS0804	WS0804
5 Swivel Body	WS6701	WS0805-B	WS0805-N	WS0805-NT
6 Grease fitting	WB2120	WB2120	WB2120	WB2120
7 Swivel seal kit	WS0706	WS0806B	WS0806B	WS0806B
8 Seal retainer	WS0707	WS0807B	WS0807B	WS0807B





## ASSEMBLY

Description	Part No	Weight	
		lb	kg
Hoisting Plug Assy	HP60000	10.79	4.9
AW Rod Box Assy			

## Repair Kit Hoisting Plug

HP60018	2.61	1.2
---------	------	-----

- Bearing (2)
- Spindle (1)
- Cotter Pin (1)

1	Bail	HP60010
2	Spindle	HP60014
3	Cotter pin (1/8" x 1 3/4")	HP60017
4	Nut	HP60011
5	Bearing assy	HP60012
6	Grease fitting	WB2120
7	Body AW rod box	HP60013

## ROD ADAPTORS

Rod Pin	Standard Rod Pin	Part No.
A	AW	A3537005
B	AW	A3537105
N	AW	A3537205
NM	AW	A3537211
H	AW	A3537305
HM	AW	A3537324
Thin Wall Rod Pin	Standard Rod Pin	Part No.
ATW	AW	A3566005
BTW	AW	A3566105
NTW	AW	A3566205

\* Additional adaptor and part numbers are listed in the Adaptor section.





## ASSEMBLY

Description	Part No	Weight	
		lb	kg
Hoisting Plug Assy NW Rod Box Assy	HP130000	17.10	7.89

## Repair Kit Hoisting Plug

HP130017	2.87	1.3
----------	------	-----

- Bearing (1)
- Spindle (1)
- Cotter Pin (1)

1	Bail	HP130010
2	Spindle	HP130014
3	Cotter pin (3/16" x 2 1/2")	HP130016
4	Nut	HP130011
5	Bearing assy	HP130012
6	Grease fitting	WB2120
7	Body NW box	HP130013

## CASING ADAPTORS

Rod Pin	Casing Pin	Part No.
NW	BW	A2212800
NW	NW	A2212801
NW	HW	A2212802
NW	PW	A2212803

## ROD ADAPTORS

Rod Pin	Standard Rod Pin	Part No.
A	NW	A3537009
B	NW	A3537109
N	NW	A3537209
NM	NW	A3537213
H	NW	A3537309
HM	NW	A3537328
P	NW	A3537409
HW	NW	A3537410

Thin Wall Rod Pin	Standard Rod Pin	Part No.
ATW	NW	A3566009
BTW	NW	A3566109
NTW	NW	A3566209

\* Additional adaptor and part numbers are listed in the Adaptor section.



## ASSEMBLY

Description	Part No	Weight	
		lb	kg
Hoisting Plug Assy NW Rod Box Assy	HP130000	17.10	7.89

## Repair Kit Hoisting Plug

HP300050	35.00	15.9
----------	-------	------

- Bearing (1)
- Spindle (1)
- Cotter Pin (1)

1	Bail	HP300060
2	Spindle	HP300064
3	Cotter pin (3/16" x 2 1/2")	HP130016
4	Nut	HP300061
5	Bearing assy	HP300062
6	Grease fitting	WB2120
7	Body NW rod box	HP300063

## CASING ADAPTORS

Rod Pin	Casing Pin	Part No.
NW	BW	A2212800
NW	NW	A2212801
NW	HW	A2212802
NW	PW	A2212803

## ROD ADAPTORS

Rod Pin	Standard Rod Pin	Part No.
A	NW	A3537009
B	NW	A3537109
N	NW	A3537209
NM	NW	A3537213
H	NW	A3537309
HM	NW	A3537328
P	NW	A3537409
HW	NW	A3537410

Thin Wall Rod Pin	Standard Rod Pin	Part No.
ATW	NW	A3566009
BTW	NW	A3566109
NTW	NW	A3566209

\* Additional adaptor and part numbers are listed in the Adaptor section.



### Locking couplings

Most of our locking couplings have a carbide ring.  
Available for surface and underground from A to P.



## SURFACE

### STANDARD

51-315	A TK Adapter Coupling
WA2135	A /ATW Adapter Coupling
WB2135	B Adapter Coupling
WBTW2335	BTW Adapter Coupling
WN2135	N Adapter Coupling
WNTW2364	NTW Adapter Coupling New Style
WH2135	H Adapter Coupling
WHW2135-1	HW Adapter Coupling

## UNDERGROUND

### STANDARD

WBU2135	B U Drive Adapter Coupling
WNU2135	N U Drive Adapter Coupling
WBTWU2335	BTW-U Drive Adapter Coupling
WNTWU2335	NTW-U Drive Adapter Coupling
WBU2835	B U adapter coupling
WNU2835	N U adapter coupling
WHU2835	H U adapter coupling



## SURFACE

### HEXAGONAL

WB2135H	B Adapter Coupling Hex
WN2135H	N Adapter Coupling Hex
WH2135H	H Adapter Coupling Hex

## LOCKING COUPLING CARBIDE SURFACE



CARBIDE	
51-001	A Locking Coupling Carbide 1.5"
51-012	ATW Locking Coupling Carbide 1.5" with Tang
51-101	B Locking Coupling Carbide 2.5" with Tang
51-103	BTW Locking Coupling Carbide 2.5" with Tang
51-111	BT Locking Coupling Carbide 2.5" with Tang
51-201	N Locking Coupling Carbide 2.5" with Tang
51-204	NTW Locking Coupling Carbide 2.5" with Tang
51-211	NT Locking Coupling Carbide 2.5" with Tang
51-220	H Locking Coupling Carbide 2.5" with Tang
51-221	HM Locking Coupling Carbide 2.5" with Tang
51-222	HT Locking Coupling Carbide 2.5" with Tang
51-224	HWT Locking Coupling Carbide 2.5" with Tang
51-230	P Locking Coupling Carbide 2.5" with Tang

## LOCKING COUPLING CARBIDE UNDERGROUND



CARBIDE	
51-003	A -U Locking Coupling Carbide 1.5" No Tang
51-004	AT-U Locking Coupling Carbide 1.5" No Tang
51-005	ARTK-U Locking Coupling Carbide 1.5" No Tang
51-006	A TK-U Locking Coupling Carbide 1.5"
51-015	ATW-U Locking Coupling Carbide 1.5" No Tang
51-104	B -U Locking Coupling Carbide 2.5" No Tang
51-105	BTW-U Locking Coupling Carbide 2.5" No Tang
51-114	BT-U Locking Coupling Carbide 2.5" No Tang
51-202	N -U Locking Coupling Carbide 2.5" No Tang
51-212	NT-U Locking Coupling Carbide 2.5" No Tang
51-223	HM -U Carbide Locking Coupling 2.5" No Tang
51-225	HWT-U Locking Coupling Carbide 2.5" No Tang
51-226	H -U Locking Coupling Carbide 2.5" No Tang



## LOCKING COUPLING STANDARD SURFACE



### STANDARD

WB2134	B Locking Coupling Standard
WBT2173	BT Locking Coupling Standard
WBTW2334	BTW Locking Coupling Standard
WH2134	H Locking Coupling Standard
WH2173	HT Locking Coupling Standard
WHM2172	HM Locking Coupling Standard
WHT2173	HT Locking Coupling Standard
WN2134	N Locking Coupling Standard
WNM2172C	NM Locking Cplg Carb 2.5
WNT2173	NT Locking Coupling Standard
WNTW2363	NTW Locking Coupling New Style
WP2134-3	P Locking Coupling Standard c/w HWT Box

## LOCKING COUPLING STANDARD UNDERGROUND



### STANDARD

WBU2134	B U locking Coupling Standard
WBTWU2334	BTW U locking Coupling Standard
WNU2134	N U locking Coupling Standard
WHU2134	H U locking Coupling Standard

## LOCKING COUPLING HEX SURFACE



HEXAGONAL	
WB2134H	B Locking Coupling Hex
WBT2173H	BT Locking Coupling Hex
WBTW2334H	BTW Locking Coupling Hex
WH2134H	H Locking Coupling Hex
WHT2173H	HT Locking Coupling Hex
WHTW2334H	HTW Locking Coupling Hex
WHW2134-1	HW Locking Coupling Hex
WN2134H	N Locking Coupling Hex
WNT2173H	NT Locking Coupling Hex
WNTW2363	NTW locking Coupling hex



## LOCKING COUPLING HEX UNDERGROUND

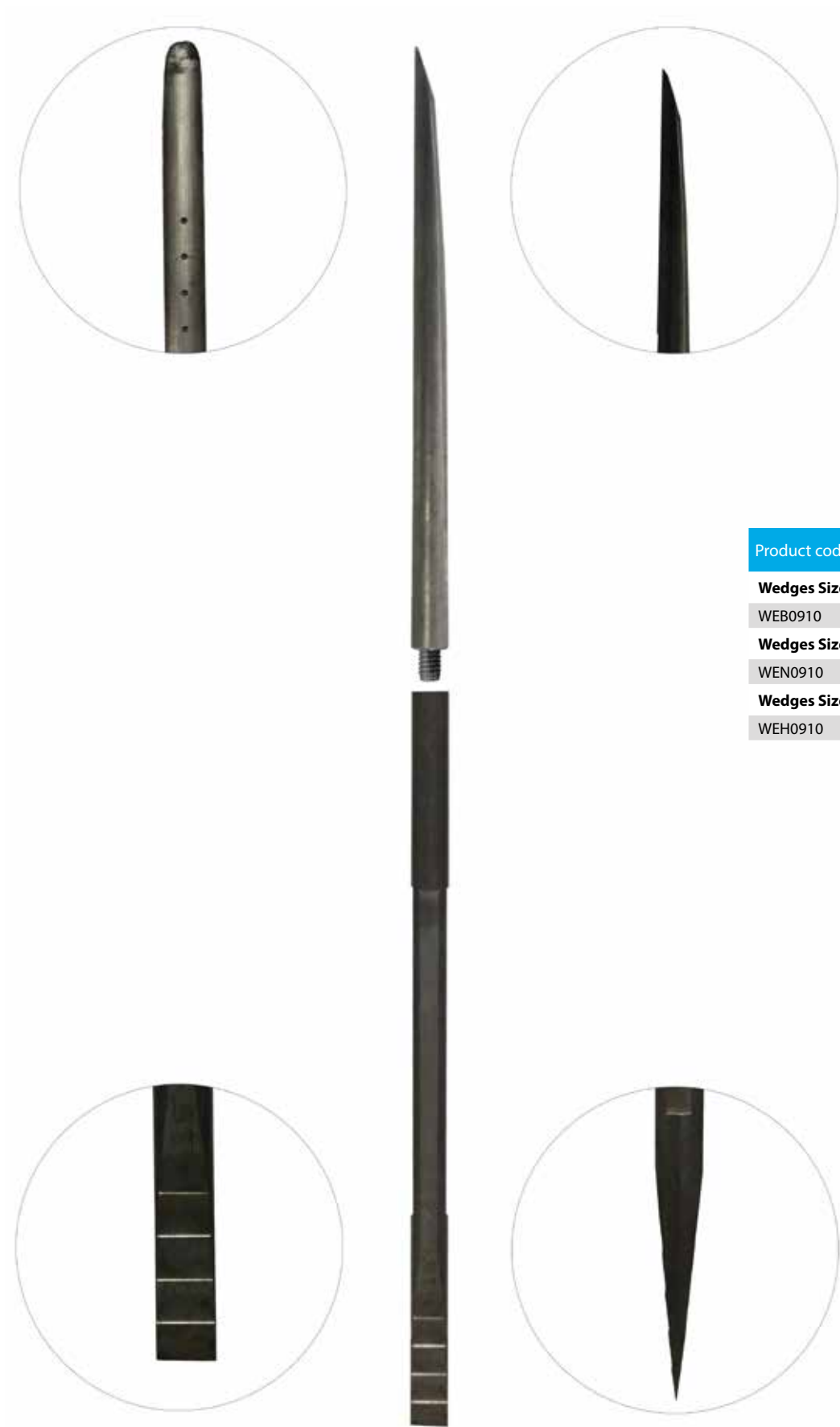
HEXAGONAL	
WBU2134H	B U Locking Coupling Hex
WBTU2173H	BT-U Locking Coupling Hex
WNU2134H	N-U Locking Coupling Hex
WBTWU2334H	BTW U Locking Coupling Hex



Product codes	Description
<b>Wedges Size B</b>	
WEB0900	B By Pass Wedge
<b>Wedges Size N</b>	
WEN0900	N By Pass Wedge
<b>Wedges Size H</b>	
WEH0900	H By-Pass Wedge

# BY-PASS WEDGES

Two pieces



Product codes	Description
<b>Wedges Size B</b>	
WEB0910	B By Pass Wedge 2 pcs
<b>Wedges Size N</b>	
WEN0910	N By Pass Wedge 2 pcs
<b>Wedges Size H</b>	
WEH0910	H By Pass Wedge 2 pcs



Group	Description	Part No	Weight	
			lb	kg
1	<b>Wooden plug</b>	A	WEA0100	0.50 0.2
		B	WEB0100	1.00 0.4
		N	WEN0100	3.50 1.6
		H	WEH0100	7.00 3.1

**Copper rivets** All sizes : WE0800 0.25 0.1

Group	Description	Part No	Weight	
			lb	kg
2	<b>Steel plug basket</b>	A	WEA5602	1.40 0.6
		B	WEB5602	1.53 0.7
		N	WEN5602	1.53 0.7
		H	WEH5602	1.53 0.7

Group	Description	Part No	Weight	
			lb	kg
3	<b>Wedge plug*</b>	A	WEA5600	5.70 2.6
		B	WEB5600	8.45 3.8
		N	WEN5600	12.10 5.5
		H	WEH5600	17.00 7.7

\* Comes complete with pin.

Group	Description	Part No	Weight	
			lb	kg
4	<b>Rod Box</b>	<b>Square Box</b>		
		A	WEA5601	1.98 0.9
		B	WEB5601	2.95 1.3
		N	WEN5601	4.56 2.0
		H	WEH5601	7.34 3.3

	<b>Thin Wall</b>	<b>Square Box</b>		
	ATW	3/4	WEATW5611	1.90 0.8
	BTW	3/4	WEBTW5611	2.15 1.2
	NTW	3/4	WENTW5611	4.10 1.8

\* Additional adaptor description and part numbers are listed in the adaptor section.





Our adaptors are made of the best quality materials.  
We build any kind of adaptors.

Sizes available

- A to P
- ATW to HTW
- NM to HM
- AW to HW
- HWT to PWT
- AW CASING to SW CASING
- A Tuff to P Tuff

## DRILL RODS ADAPTORS



Description		Part No	Weight lb kg	
Standard Rod Pin	Standard Rod Pin			
A	AW	A3301301	1.79	0.8
A	B	A3301302	2.17	1.0
A	BW	A3301303	2.70	1.2
A	N	A3301304	3.80	1.7
A	NW	A3301305	4.40	2.0
A	NW	A3301306	5.10	2.3
AW	B	A3301401	2.31	1.1
AW	BW	A3301402	3.12	1.4
AW	N	A3301403	3.75	1.7
AW	NW	A3301404	4.37	1.9
AW	HW	A3301405	5.19	2.4
B	BW	A3301501	3.42	1.6
B	N	A3301502	4.35	2.0
B	HW	A3301503	5.26	2.4
BW	N	A3301601	3.89	1.8
BW	NW	A3301602	4.75	2.2
BW	HW	A3301603	5.90	2.7
N	NW	A3301701	5.12	2.3
N	HW	A3301702	6.74	3.1
NW	HW	A3301801	7.00	3.2

## DRILL RODS ADAPTORS



Description		Part No	Weight lb kg	
Rod Pin	Standard Rod Pin			
A	A	A3537004	1.82	0.8
A	AW	A3537005	2.00	0.9
A	B	A3537006	2.74	1.3
A	BW	A3537007	3.50	1.6
A	N	A3537008	3.90	1.8
A	NW	A3537009	4.45	2.0
A	HW	A3537010	5.15	2.4
B	A	A3537104	3.05	1.4
B	AW	A3537105	3.05	1.4
B	B	A3537106	3.00	1.4
B	BW	A3537107	3.00	1.4
B	N	A3537108	4.60	2.1
B	NW	A3537109	4.75	2.2
B	HW	A3537110	5.50	2.5
N	A	A3537204	4.91	2.2
N	AW	A3537205	4.89	2.2
N	B	A3537206	5.10	2.3
N	BW	A3537207	5.11	2.3
N	N	A3537208	5.28	2.4
N	NW	A3537209	5.81	2.6
N	NW	A3537210	6.70	3.1
H	A	A3537304	6.56	2.9
H	AW	A3537305	7.05	3.2
H	B	A3537306	7.20	3.0
H	BW	A3537307	7.37	3.3
H	N	A3537308	7.55	3.4
H	NW	A3537309	7.67	3.5
H	HW	A3537310	8.05	3.6
NW	AW	A3537311	10.60	4.8
HM	NW	A3537316	10	4.5
HM	BW	A3537326	7.40	3.3
HM	NW	A3537328	7.60	3.4
P	BW	A3537407	7.80	3.5
HW	BW	A3537408	7.80	3.5
P	NW	A3537409	9.70	4.4
HW	NW	A3537410	9.70	4.4

## DRILL RODS ADAPTORS



Description		Part No	Weight lb kg	
<b>Thin Wall Rod Pin</b>	<b>Standard Rod Pin</b>			
ATW	A	A3566004	2.10	1.0
ATW	AW	A3566005	2.00	1.0
ATW	BW	A3566007	2.20	1.1
ATW	NW	A3566009	2.95	1.3
BTW	A	A3566104	3.10	1.4
BTW	AW	A3566105	3.21	1.5
BTW	BW	A3566107	3.21	1.5
BTW	NW	A3566109	4.70	2.1
NTW	AW	A3566205	5.29	2.4
NTW	BW	A3566207	4.65	2.1
NTW	NW	A3566209	5.08	2.3
<b>Thin Wall Rod Pin</b>	<b>Rod Pin</b>			
ATW	A	A3566025	1.02	0.5
ATW	B	A3566027	1.10	0.5
BTW	A	A3566125	1.50	0.7
BTW	B	A3566127	1.62	0.7
NTW	A	A3566225	5.20	2.4
NTW	B	A3566227	4.60	2.1
NTW	N	A3566228	5.00	2.3
NTW	H	A3566229	6.45	2.9

## DRILL RODS ADAPTORS



Description		Part No	Weight lb kg	
<b>Rod Pin</b>	<b>Standard Rod Box</b>			
A	A	A3637004	1.45	0.6
A	AW	A3637005	1.59	0.7
A	B	A3637006	1.76	0.8
A	BW	A3637007	2.00	0.9
A	N	A3637008	2.20	1.0
A	NW	A3637009	3.79	1.7
A	HW	A3637010	4.18	1.9
B	A	A3637104	3.08	1.4
B	AW	A3637105	2.79	1.3
B	B	A3637106	2.64	1.2
B	BW	A3637107	2.21	1.0
B	N	A3637108	2.86	1.3
B	NW	A3637109	3.30	1.5
B	HW	A3637110	3.74	1.7
N	A	A3637204	6.23	2.8
N	AW	A3637205	5.23	2.4
N	B	A3637206	5.00	2.2
N	BW	A3637207	4.48	2.0
N	N	A3637208	3.20	1.4
N	NW	A3637209	3.09	1.4
N	HW	A3637210	2.80	1.2
H	A	A3637304	9.95	4.5
H	AW	A3637305	7.15	3.2
H	B	A3637306	6.37	2.8
H	BW	A3637307	8.52	3.8
H	N	A3637308	8.00	3.6
H	NW	A3637309	7.77	3.5
H	HW	A3637310	2.81	1.3

## DRILL RODS ADAPTORS



Description		Part No	Weight lb kg	
<b>Thin Wall Rod Pin</b>	<b>Standard Rod Box</b>			
ATW	A	A3666004	1.45	0.6
ATW	AW	A3666005	1.48	0.7
ATW	BW	A3666007	1.60	0.7
ATW	NW	A3666009	1.90	0.8
BTW	A	A3666104	2.45	1.1
BTW	AW	A3666105	3.04	1.4
BTW	BW	A3666107	3.30	1.5
BTW	NW	A3666109	3.74	1.7
NTW	AW	A3666205	6.34	2.9
NTW	BW	A3666207	5.18	2.4
NTW	NW	A3666209	4.50	2.0
<b>Thin Wall Rod Pin</b>	<b>Rod Box</b>			
ATW	A	A3666025	0.91	0.4
ATW	B	A3666027	2.00	0.9
H	N	A3666125	2.10	1.0
H	NW	A3666127	1.34	0.6
NTW	A	A3666225	5.23	2.3
NTW	B	A3666227	4.83	2.2
NTW	N	A3666228	3.09	1.4
NTW	H	A3566229	6.45	2.9

## DRILL RODS ADAPTORS



Description		Part No	Weight lb kg	
<b>Rod Box</b>	<b>Standard Rod Box</b>			
A	A	A3437004	1.33	0.6
A	AW	A3437005	1.23	0.5
A	B	A3437006	1.13	0.5
A	BW	A3437007	1.03	0.5
A	N	A3437008	2.40	1.1
A	NW	A3437009	2.52	1.1
A	HW	A3437010		
B	A	A3437104	2.12	1.0
B	AW	A3437105	2.10	1.0
B	B	A3437106	2.65	1.2
B	BW	A3437107	1.98	0.9
B	N	A3437108	2.42	1.1
B	NW	A3437109	2.50	1.1
B	HW	A3437110	2.95	1.3
N	A	A3437204	5.40	2.5
N	AW	A3437205	5.23	2.4
N	B	A3437206	5.00	2.3
N	BW	A3437207	4.48	2.0
N	N	A3437208	3.29	1.5
N	NW	A3437209	3.00	1.4
N	HW	A3437210	2.80	1.3
H	A	A3437304	6.65	3.0
H	AW	A3437305	6.19	2.8
H	B	A3437306	5.12	2.3
H	BW	A3437307	4.95	2.3
H	N	A3437308	3.22	1.5
H	NW	A3437309	3.20	1.5
H	HW	A3437310	3.10	1.4

## DRILL RODS ADAPTORS



Description		Part No	Weight lb kg	
<b>Thin Wall Rod Box</b>	<b>Standard Rod Box</b>			
ATW	A	A3466004	1.00	0.5
ATW	AW	A3466005	0.97	0.4
ATW	BW	A3466007	1.55	0.7
ATW	NW	A3466009	3.10	1.4
BTW	A	A3466104	1.21	0.5
BTW	AW	A3466105	1.29	0.6
BTW	BW	A3466107	1.15	0.5
BTW	NW	A3466109	2.19	1.0
NTW	BW	A3466205	3.47	1.6
NTW	BW	A3466207	3.19	1.4
NTW	NW	A3466209	2.85	1.3
<b>Thin Wall Rod Box</b>	<b>Rod Box</b>			
ATW	A	A3466025	0.97	0.4
ATW	B	A3466027	1.46	0.7
BTW	A	A3466125	1.90	0.9
BTW	B	A3466127	1.85	0.8
NTW	A	A3466225	3.65	1.7
NTW	B	A3466227	3.41	1.5
NTW	N	A3466229	3.18	1.4
NTW	H	A3566229	6.45	2.9

## DRILL RODS ADAPTORS



Description		Part No	Weight lb kg	
<b>Standard Rod Box</b>	<b>Standard Rod Box</b>			
A	AW	A3601301	1.46	0.7
A	B	A3601302	1.57	0.7
A	BW	A3601303	1.86	0.8
A	N	A3601304	3.12	1.4
A	NW	A3601305	3.22	1.5
AW	B	A3601401	1.42	0.6
AW	BW	A3601402	1.57	0.7
AW	N	A3601403	2.80	1.3
AW	NW	A3601404	2.85	1.3
AW	HW	A3601405	3.79	1.7
B	BW	A3601501	1.39	0.63
B	B	A3601502	2.10	0.9
BW	B	A3601601	2.20	1.0
BW	BW	A3601602	2.46	1.1
BW	HW	A3601603	3.46	1.6
N	NW	A3601701	3.26	1.5
N	HW	A3601702	3.95	1.8
NW	HW	A3601801	4.45	2.0



## DRILL RODS ADAPTORS



Description		Part No	Weight lb kg	
Rod Box	Standard Rod Pin			
A	A	A3337004	1.45	0.6
A	AW	A3337005	1.45	0.5
A	B	A3337006	1.60	0.7
A	BW	A3337007	1.65	0.7
A	N	A3337008	2.50	1.1
A	NW	A3337009	2.55	1.1
A	HW	A3337010	4.10	1.9
B	A	A3337104	2.45	1.1
B	AW	A3337105	2.45	1.1
B	B	A3337106	2.33	1.0
B	BW	A3337107	2.46	1.1
B	N	A3337108	2.86	1.3
B	NW	A3337109	3.65	1.3
B	HW	A3337110	4.51	2.1
N	A	A3337204	3.85	1.7
N	AW	A3337205	3.79	1.7
N	B	A3337206	3.45	1.6
N	BW	A3337207	4.05	1.8
N	N	A3337208	3.56	1.6
N	NW	A3337209	3.59	1.6
N	HW	A3337210	3.80	1.7
H	A	A3337304	6.76	3.1
H	AW	A3337305	6.76	3.1
H	B	A3337306	6.40	2.9
H	BW	A3337307	6.37	2.9
H	N	A3337308	6.12	2.7
H	NW	A3337309	6.12	2.7
H	HW	A3337310	6.00	2.7
Rod Box	Rod Pin			
N	HW	A3338211	8.10	3.6
N	HW	A3338311	8.60	3.9

## DRILL RODS ADAPTORS



Description		Part No	Weight lb kg	
Thin Wall Rod Box	Standard Rod Pin			
ATW	A	A3366004	1.30	0.6
ATW	AW	A3366005	1.50	0.7
ATW	BW	A3366007	1.80	0.8
ATW	NW	A3366009	2.00	0.9
BTW	A	A3366104	2.45	1.1
BTW	AW	A3366105	2.58	1.2
BTW	BW	A3366107	2.67	1.2
BTW	NW	A3366109	2.80	1.3
NTW	AW	A3366205	3.39	1.5
NTW	BW	A3366207	3.14	1.4
NTW	NW	A3366209	3.59	1.6
Thin Wall Rod Box	Rod Pin			
ATW	A	A3366025	1.30	0.6
ATW	B	A3366027	1.80	0.8
BTW	A	A3366125	2.40	1.1
BTW	B	A3366127	1.00	0.4
NTW	A	A3366225	3.40	1.5
NTW	B	A3366227	3.15	1.4
NTW	N	A3366228	6.09	2.8

## DRILL RODS ADAPTORS



Description		Part No	Weight lb kg	
Standard Rod Box	Standard Rod Pin			
A	AW	A3501301	2.00	0.9
A	B	A3501302	2.50	1.3
A	BW	A3501303	2.73	1.2
A	N	A3501304	3.62	1.6
A	NW	A3501305	5.25	2.4
AW	B	A3501401	2.50	1.1
AW	BW	A3501402	2.73	1.2
AW	N	A3501403	3.62	1.6
AW	NW	A3501404	4.00	1.8
AW	HW	A3501405	5.25	2.4
B	BW	A3501501	2.80	1.3
B	N	A3501502	3.00	1.4
BW	N	A3501601	3.59	1.6
BW	NW	A3501602	4.59	2.1
BW	HW	A3501603	5.00	2.2
N	NW	A3501701	4.62	2.1
N	HW	A3501702	5.00	2.2
NW	BW	A3501801	8.36	3.8

## DRILL RODS ADAPTORS



Description		Part No	Weight lb kg	
Standard Rod Pin	Standard Rod Box			
A	AW	A3401301	1.48	0.7
A	B	A3401302	1.60	0.7
A	BW	A3401303	1.70	0.7
A	N	A3401304	1.80	0.8
A	NW	A3401305	1.90	0.9
A	HW	A3401306	2.00	0.9
AW	B	A3401401	2.46	1.1
AW	BW	A3401402	2.80	1.3
AW	N	A3401403	3.20	1.4
AW	NW	A3401404	3.80	1.7
AW	HW	A3401405	4.18	1.9
B	BW	A3401501	2.21	1.0
B	N	A3401502	2.86	1.3
B	NW	A3401503	3.74	1.7
BW	N	A3401601	2.86	1.3
BW	NW	A3401602	3.30	1.5
BW	HW	A3401603	3.74	1.7
N	NW	A3401701	3.09	1.4
N	HW	A3401702	3.50	1.6
NW	HW	A3401801	3.80	1.7

## A.P.I. ADAPTORS



Description	Part No	Weight	
		lb	kg
<b>Rod Box</b>	<b>A.P.I. Regular Box</b>		
NW	2 3/8	A8151303	13.05 5.9
NW	2 7/8	A8151305	16.00 7.3
NW	3 1/2	A8151306	21.00 9.5
N	2 3/8	A8151307	7.30 3.3
N	2 7/8	A8151308	7.30 3.3
H	2 3/8	A8151309	9.25 4.2
H	2 7/8	A8151314	9.25 4.2
H	3 1/2	A8151315	11.35 5.1

## A.P.I. ADAPTORS



Description	Part No	Weight	
		lb	kg
<b>Casing Box</b>	<b>A.P.I. Regular Box</b>		
NW	2 3/8	A8151204	9.45 4.3
HW	2 7/8	A8151205	15.55 7.1
BW	2 3/8	A8151206	8.70 3.9
NW	2 7/8	A8151207	10.30 4.7
NW	3 1/2	A8151208	12.40 5.6
HW	2 3/8	A8151211	15.10 6.8

## CASING ADAPTORS



Description		Part No	Weight lb kg	
Standard Rod Box	W Casing Pin			
A	AW	A2211301	3.17	1.4
A	BW	A2211302	6.79	3.0
A	NW	A2211303	11.60	5.3
A	HW	A2211304	19.35	8.8
AW	AW	A2211401	1.20	0.5
AW	BW	A2211402	6.34	2.8
AW	NW	A2211403	11.10	5.0
AW	HW	A2211404	13.20	6.0
BW	BW	A2211601	5.60	2.5
BW	NW	A2211602	10.15	4.6
BW	HW	A2211603	18.35	8.3
BW	PW	A2211604	25.20	11.4
NW	NW	A2211801	9.25	4.2
NW	HW	A2211802	18.55	8.4
NW	PW	A2211803	26.30	11.9
HW	NW	A2211900	6.30	2.8
HW	HW	A2211901	13.70	6.2
HW	PW	A2211902	27.55	12.5
HW	SW	A2211903	35.50	16.1

## CASING ADAPTORS



Description		Part No	Weight lb kg	
Rod Box	W Casing Pin			
A	AW	A2311101	3.15	1.4
A	AW	A2311102	4.40	2.0
B	BW	A2311201	4.45	2.0
B	NW	A2311202	8.50	9.0
N	BW	A2311291	2.08	0.9
N	NW	A2311301	6.65	3.0
N	HW	A2311302	17.20	7.8
H	NW	A2311401	3.00	1.4
HW	HW	A2311402	3.45	1.6
H	HW	A2311502	12.35	5.6
HW	HW	A2311503	6.10	2.7
HW	HW	A2311504	4.50	2.0
P	HW	A2311511	5.00	2.2
H	PW	A2311601	25.70	11.7
HW	PW	A2311602	14.00	6.3
HW	PW	A2311603	14.70	6.7
P	PW	A2311604	14.80	6.7
Thin Wall Rod Box	W Casing Pin			
ATW	AW	A2366101	2.83	1.3
ATW	BW	A2366102	4.51	2.0
BTW	BW	A2366201	3.83	1.7
BTW	NW	A2366202	8.30	3.7
NTW	NW	A2366301	5.71	2.6
NTW	HW	A2366302	16.50	7.5

## CASING ADAPTORS



Description		Part No	Weight	
			lb	kg
<b>W Casing Pin</b>	<b>Pipe Pin</b>			
AW	2.0"	A2411201	1.59	0.7
BW	2.5"	A2411301	2.53	1.2
NW	3.0"	A2411401	3.21	1.5
HW	4.0"	A2411501	4.10	1.8

## CASING ADAPTORS



Description		Part No	Weight	
			lb	kg
<b>Rod Pin</b>	<b>W casing box</b>			
N	BW	A2312401	2.34	1.1
H	NW	A2312502	2.73	1.2
P	HW	A2312602	5.09	2.3





**All recovery tools are heat treated**

- Wireline rod tap
- Wireline rod full grip tap
- Casing tap
- Standard bell tap
- Wireline rod bell tap
- Standard rod and coupling tap

## WIRELINER ROD TAP



Description	Part No	Weight	
		lb	kg

### RIGHT HAND TAP

Rod Size	Connection			
A	A	TA3000	2.69	1.2
B	B	TB3000	4.70	1.9
N	N	TN3000	7.50	3.4
H	H	TH3000	12.30	5.6
P	P	TP3000	17.40	7.9
HW	HW	TH3001	17.40	7.9
HW	HW	TH5000	16.00	7.3

### Thin Wall

ATW	ATW	TATW6500	2.94	1.3
BTW	BTW	TBTW6500	4.94	2.3
NTW	NTW	TNTW6500	8.28	3.8

### LEFT HAND TAP

Rod Size	Connection			
A	A	TA3000L	2.70	1.2
B	B	TB3000L	4.50	2.1
N	N	TN3000L	7.36	3.3
H	H	TH3000L	14.50	6.6

### Thin Wall

ATW	ATW	TATW6500L	2.90	1.3
BTW	BTW	TBTW6500L	4.90	2.2
NTW	NTW	TNTW6500L	8.20	3.7



## WIRELINER ROD FULL GRIP TAP

Description	Part No	Weight	
		lb	kg

### RIGHT HAND TAP

Rod Size	Connection			
A	EW	TA3100	2.69	1.2
B	AW	TB3100	4.70	1.9
N	BW	TN3100	7.50	3.4
H	NW	TH3100	12.30	5.6

### Thin Wall

ATW	EW	TATW6600	2.94	1.3
BTW	AW	TBTW6600	4.94	2.3
NTW	BW	TNTW6600	8.28	3.8



Description		Part No	Weight	
			lb	kg
RIGHT HAND TAP				
Rod Size	Connection			
EW	EW	TEW1001	3.01	1.8
AW	AW	TAW1002	5.40	2.5
BW	BW	TBW1003	8.50	3.9
NW	NW	TNW1004	11.25	5.1
HW	HW	THW1005	21.65	9.8
AW	A	TAW3000	6.10	2.7
BW	B	TBW3000	8.15	3.7
NW	N	TNW3000	11.50	5.2
HW	H	THW3000	22.95	10.4
PW	P	TPW3000	29.80	13.5
PW	HW	TPW3001	29.80	13.5
AW	ATW	TAW6500	6.20	2.8
BW	BTW	TBW6500	8.40	3.8
NW	NTW	TNW6500	11.50	5.2



## STANDARD ROD BELL TAP

Description		Part No	Weight lb      kg	
RIGHT HAND TAP				
Tap Size	Connection Rod Box (RH)			
EW	EW	TESB1001	2.60	1.2
AW	AW	TASB1002	3.20	1.5
BW	BW	TBSB1003	3.80	1.7
NW	NW	TNSB1004	4.44	2.0
HW	HW	THSB1005	6.10	2.8
LEFT HAND TAP				
Tap Size	Connection Rod Box (LH)			
EW	EW	TESB1001L	2.60	1.2
AW	AW	TASB1002L	3.20	1.5
BW	BW	TBSB1003L	3.80	1.7
NW	NW	TNSB1004L	4.40	2.0
HW	HW	THSB1005L	6.10	2.8

## WIRELINE ROD BELL TAP



Description	Part No	Weight	
		lb	kg

### RIGHT HAND

#### Tap Box Size

A	TAB3000	1.20	0.5
B	TBB3000	1.69	0.8
N	TNB3000	2.66	1.2
H	THB3000	4.19	1.9
P	TPB3000	4.20	4.3
HW	THB5000	4.20	1.9



## STANDARD ROD AND COUPLING TAP

Description	Part No	Weight	
		lb	kg

### RIGHT HAND

#### Tap Box Size Connection

EW	EW	TE1001	1.30	0.6
AW	AW	TA1002	2.19	0.9
BW	BW	TB1003	3.89	1.7
NW	NW	TN1004	6.30	2.9
HW	HW	TH1005	14.87	6.7

### LEFT HAND TAP

#### Tap Box Size Connection (left hand)

EW	EW	TE1001L	1.30	0.6
AW	AW	TA1002L	2.55	1.2
BW	BW	TB1003L	3.90	1.7
NW	NW	TN1004L	6.30	2.9
HW	HW	TH1005L	14.90	6.7



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Reaming Shells	2
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Casing Shoes Casing Bits / Rod Shoes	3
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Wedge Tools	4
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The quality of Pilot diamond tools is recognized worldwide. The products are sturdy, made with quality diamonds and have a long life expectancy.







## REAMING SHELLS

Model

Size	6" Diamonds «A»	6"	10"	10" no stab	18"	18" no stab
A	✓		✓	✓	✓	✓
A TK				✓		
ATW	✓	✓	✓	✓	✓	✓
LTK48				✓		
B	✓	✓	✓	✓	✓	✓
B TK			✓	✓		
BTW	✓	✓	✓	✓	✓	✓
N	✓	✓	✓	✓	✓	✓
H		✓	✓	✓		
P		✓	✓	✓		



## CASING SHOES

Our Casing Shoes are offered in two different sizes Econo.» and «V-Ring».

### Model

Size	Econo.	V-Ring	V-Ring +
AW	✓	✓	
BW	✓	✓	✓
NW	✓	✓	✓
HW	✓	✓	✓
PW	✓	✓	✓

## CASING BITS

Our Casing Bits are designed for very hard over burden.

### Model

Size	Normal	Heavy Duty
BW-N	✓	✓
NW-H	✓	✓
HW-P	✓	
N -N	✓	

## ROD SHOES

Our Rod Shoes are used for over burden.

### Model

Size	Econo.	V-Ring	V-Ring +
N	✓	✓	✓
NT	✓	✓	✓
H	✓	✓	
HT	✓	✓	
HWT	✓	✓	
HM	✓	✓	



## Standard Wedge Diamonds

- A Taper Wedge Bit
- B Taper Wedge Bit
- N Taper Wedge Bit
- B Ball Bit Pencil Core, B Ball Bit 2 Holes
- N Ball Bit Pencil Core, N Ball Bit 2 Holes
- H Ball Bit Ball Wedge

## Retrievable Wedges Diamonds

- AXC/AWC Wedge Ball Bit
- AXC/AWC Reaming Shell
- BXC/BWC Wedge Ball Bit
- BXC/BWC Wedge Reaming Bit
- BXC/BWC Reaming Shell
- NXC/NWC Wedge Ball Bit
- NXC/NWC Wedge Reaming Bit
- NXC/NWC Reaming Shell
- B Inner tube concave Bit
- N Inner tube concave Bit

# RETRIEVABLE WEDGE/PILOT REAMER ASSEMBLY

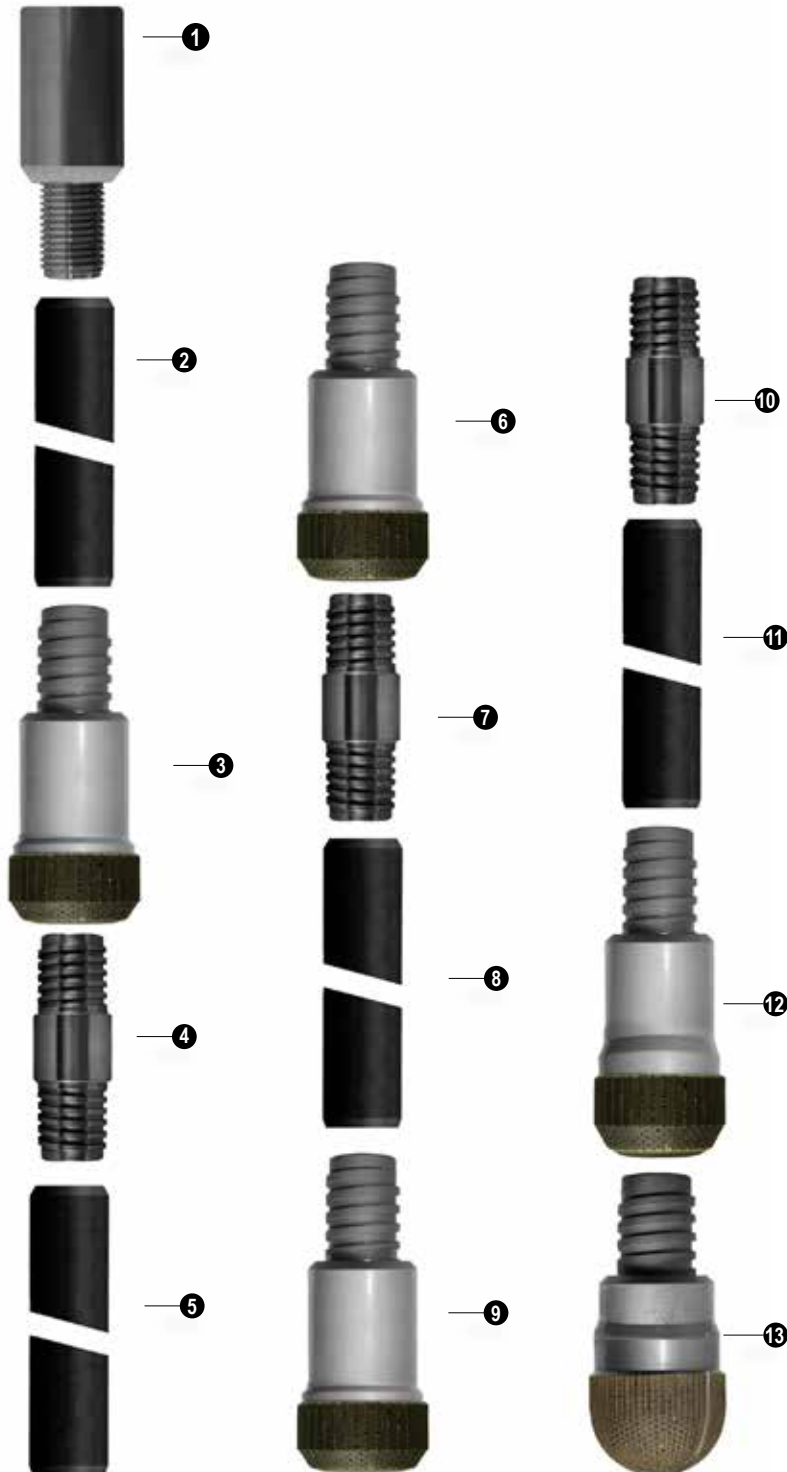
Size : B

## ASSEMBLY

Description	Part No	Weight	
		lb	kg
B Pilot Reamer Assy	WEB1100	40.58	18.4

*\*Bits and shells are not included in assembly.*

1	Drill rod adaptor	A3337106
2	Drill rod 5'	RB2065
3	Wedge reaming bit *	40-311NR
4	Lower & intermediate coupling	WEB1102
5	Lower & intermediate barrel	WEB1101
6	Wedge reaming bit *	40-311NR
7	Lower & intermediate coupling	WEB1102
8	Lower & intermediate barrel	WEB1101
9	Wedge reaming bit *	40-311NR
10	Lower & intermediate coupling	WEB1102
11	Lower & intermediate barrel	WEB1101
12	Wedge reaming shell *	40-316NR
13	Wedge ball bit *	40-252NR



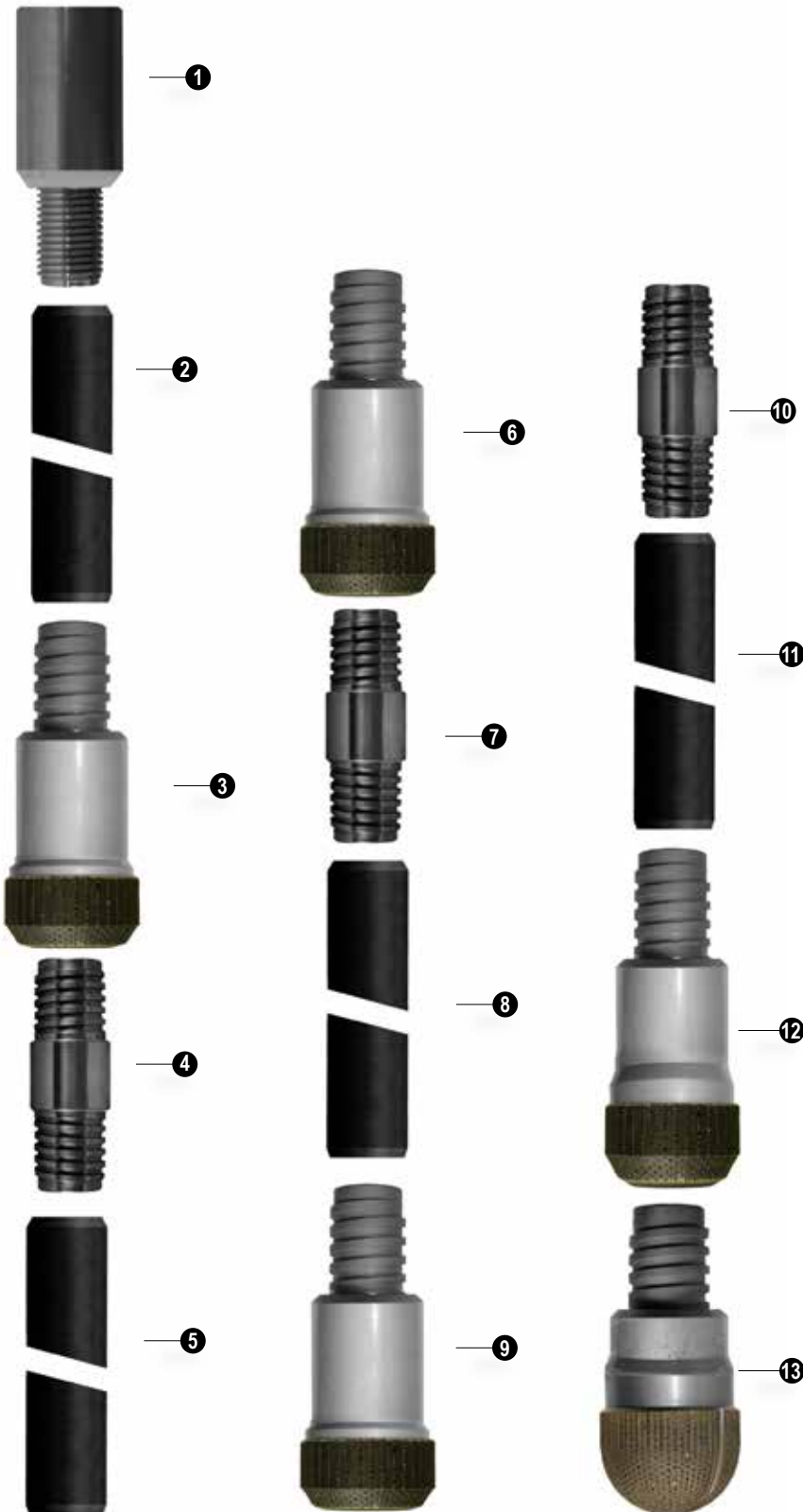
# RETRIEVABLE WEDGE/PILOT REAMER ASSEMBLY

Size : N

Description	Part No	Weight	
		lb	kg
N Pilot Reamer Assy*	WEN1100	84.21	38.3

\*Bits and shells not included in assembly.

1	Drill rod adaptor	A3337208
2	Drill rod 5'	RN2065
3	Wedge reaming bit *	40-411NR
4	Lower & intermediate coupling	WEN1102
5	Lower & intermediate barrel	WEN1101
6	Wedge reaming bit *	40-411NR
7	Lower & intermediate coupling	WEN1102
8	Lower & intermediate barrel	WEN1101
9	Wedge reaming bit *	40-411NR
10	Lower & intermediate coupling	WEN1102
11	Lower & intermediate barrel	WEN1101
12	Wedge reaming shell *	40-416NR
13	Wedge ball bit *	40-401NR







GREASE AND POLYMER CATEGORY	2
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POLYMER	3
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GREASE	14
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SOLIDS REMOVAL UNIT (SRU)	15
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## We resell

MBI Drilling Products is a proud distributor for AMC drilling fluid products. AMC specially formulated thickened grease provides resistance to high pressure, corrosion, wear and oxidation.

MBI Drilling Products offer a complete drilling fluid solution for our customers. All of our polymers are environmentally safe.







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AMC's success originates in quality products, innovative solutions and skilled technicians, dedicated to supporting our customers through a highly-mobile global network of distributors and regional locations.

We offer a total drilling fluid solution for our customers. Two distinct divisions, AMC Minerals and AMC Oil and Gas, enable AMC to support these industries respectively in key regions of the world.

## GREASE AND POLYMER CATEGORY

Category	Description	Product codes
Viscosifiers (powder)	CR-650 XANBORE AUS-GEL SANDFIX	PO-1000
Viscosifiers (liquid)	LIQUI-POL AMC 206	PO-4000 PO-2200 PO-1700 PO-1200 PO-1600 PO-7000
Lubricants	SUPER-LUBE PENETROL XTRA TORQUE GUARD	PO-5000 PO-3000
Greases	XTRA TACKY	PO-1100 PO-2000 PO-2100
Detergents	LINSEED SOAP AUS-DET EXTRA	PO-1400
Lost Circulation Materials	POLY-PLUG FINE COURSE	PO-6000

Category	Description	Product codes
Fluid Loss Control	AMC POLY-LUBE AMC DEX AMC EZEE PAC	PO-2650 PO-2600 PO-2700
Clay & Shale Stabilizers	AMC K-ION CLAY DOCTOR COREWELL	PO-1500
pH Control	SODA ASH	PO-8000
Flocculants & Dispersants	POLY-FLOC LIQUI-SPERSE AMC 1300	PO-2300 PO-1900
Weighting Materials (powder )	BARITE CALCIUM CHLORIDE	PO-1850 PO-1800
Cutting Oils	HAMMER OIL BIO HAMMER OIL CANOLA OIL	PO-3400 PO-3450 PO-2800
Sealing and Grouting Additives	AUS_GRIP A AUS_GRIP B BENTONITE CHIPS	PO-2900 PO-3100 PO-1250
Thread Grease	ZN-50 3010 ENVIRO	PO-3400 PO-3450 PO-3300



### Description

TORQUE GUARD is an environmentally acceptable, vegetable oil based lubricant used in water based fluids to reduce torque, drag and improve penetration rates.

It also has the ability to reduce to potential for differential sticking by reducing the co-efficient of friction. It does this by reducing the thickness of the filter cake and reducing the co-efficient of friction of the filter cake.

It can also reduce bit balling as well as being able to provide additional wellbore stability. TORQUE GUARD is also effective in a range of water qualities, including high salt, high pH, and water with extremely high levels of calcium and magnesium hardness.

### Application

TORQUE GUARD should be applied in situations where torque, drag and a high risk of differential sticking exists. This includes highly deviated sections and sections with high differential pressure.

An initial treatment of 3 - 5L / m3 of water should be made by injection to the circulating system to control torque and vibration. Dosage can be increased to

5 - 10L / m3 in extremely hard and abrasive ground or in deep, directional holes. Additional product can be added depending on the desired ROP, amount of shale and/or clay encountered, type of mud system and the interval length.

### Advantages

- Biodegradable, environmentally acceptable and non-hazardous
- Reduces torque and drag
- Extends bit life and improves penetration rates
- Stable in a range of water conditions
- Reduces co-efficient of friction
- Reduces bit balling
- Will not contribute to core staining
- Does not affect rheology

### Typical Properties

Appearance: Amber liquid

Solubility: Miscible in water

### Recommended Treatment

3 - 5L / m3 of water, increased to 5 - 10L / m3 in extremely hard and abrasive ground or in deep, directional hole.



### Description

COREWELL is a sophisticated multifunctional system created especially for diamond coring and slim-hole drilling activities. COREWELL helps secure intact core or cuttings by employing physical mechanisms that entrap unconsolidated core and cuttings to prevent dispersion allowing for more reliable mineralogical data analysis which ultimately leads to more accurate resource evaluations.

### Advantages

- Economical
- Single component multifunctional system
- Compatible with slim hole drilling
- Enhances hole stability
- Provides sample protection
- Maintains sample integrity
- Controls dispersion
- Improves solids separation on surface
- Readily disperses in low shear environments
- Environmentally acceptable



### Description

SAND-FIX contains a unique blend of synthetic polymers designed to support hole stability and minimise associated problems when drilling loose sands, cobbles and gravels.

SANDFIX is an alternative to Bentonite and effective in promoting bore-hole stability in collapsing and shifting formations. SAND-FIX is a versatile product for all drilling applications.

### Application

SAND-FIX has been developed as an alternative to using Bentonite or where Bentonite based products are prohibited for use. SAND-FIX enters the pores of sands and gravels to quickly form a thick 'gel-like' barrier to fuse and support the bore-hole. SAND-FIX is tolerant to high down-hole pressures and temperature and has a reasonable tolerance to saline and hard water environments.

### Advantages

- Readily disperses in low-shear environments
- Improves drilling rates
- Single-product multifunctional product
- Controls fluid loss

- Improves hole stability in sands, cobbles and gravels
- Improves recovery rates
- Compatible with most water-based drilling additives.

### Typical Physical Properties

Appearance: White, free flowing granular powder

pH (0.5 solution): 7 – 8

Solubility: Swells rapidly on contact

### Recommended Treatment

Prior to adding SAND-FIX, adjust pH to 8.5 – 9.5 and control hardness levels below 400 mg/L Calcium using SODA ASH.

SAND-FIX properties are greatly enhanced when blended with select vegetable based oils and lubricants. SAND-FIX is blended with oil at suggested a ratio of 1:2 – 1:3.

SAND-FIX is added at concentrations of 2.0 – 4.0 kg per 1000 litres, 0.7 – 1.5 lbs per bbl or 15.0 – 35.0 lbs per 1000 gallons with water and allowed to mix until consistent before pumping through the hole. Adjust addition rates if the formation continues to be troublesome.



## Description

CR-650 is a high molecular weight, powdered polymer which has been developed to improve core recovery, particularly in broken and sandy formations. It may also be used to stabilize reactive clays and shales and to provide lubrication when diamond drilling in bad conditions.

## Application

CR-650 forms a protective polymer film on the drill core and on the walls of the bore hole. This polymer film reduces water invasion into hydratable and dispersive clays and shales. CR-650 is also very effective for stabilizing loose, friable sand formations. CR-650 can be used as a single product, low solids mud system, or it can be combined with BETTA-GEL/AUSTROL to form a complete mud system.

## Advantages

- Effective - mixes rapidly in fresh to brackish water with minimum shear.
- Economical - 98% active. Provides excellent viscosity at a minimum concentration.
- Environmentally friendly - non-hazardous, non-toxic and will not ferment.
- Compatible - will not wash off ROD GREASE.

## Recommended Treatment

Application	kg per 1000 litres
Add to Fresh Water Under normal drilling conditions	0.5 - 0.75
To stabilize swelling clays and shale	0.75 - 1.0
To improve core recovery in sandy, friable formations and to increase hole stability	1 - 2

CR-650 should be mixed by adding slowly through a jet hopper or high speed stirrer.





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## Description

LIQUI-POL is a liquid anionic polymer viscosifier with high molecular weight providing rapid viscosity without the problems associated with mixing, as is the case with most powdered polymers. It provides a complete drilling fluid system and mixes very rapidly in fresh or brackish water.

## Application

LIQUI-POL can be used in diamond drilling or water well drilling:

- Produces rapid viscosity.
- Very cost effective-low concentration required.
- Reduces rod chatter and torque-increases core recovery.
- Inhibits water sensitive formations-improves borehole stability.

## Diamond Drilling Usage

Add 0.75 to 1.25 litres/1,000 litres water for complete drilling fluid. Add 0.5 to 0.75 litres/1,000 litres to stop rod vibration and reduce torque.

## Water Well Drilling Advantages

Add 0.75 to 1.25 litres/1,000 litres water for complete drilling fluid.

Add 0.5 to 0.75 litres/1,000 litres to stop rod vibration and reduce torque.

## Water Well Drilling Advantages

- Environmentally acceptable - viscosity can be broken down for development of water wells after setting screens.
- Controls sticky clays and inhibits water sensitive, swelling formations.
- Promotes effective settling of drilling solids in surface pits.
- Cost effective and economical to transport.



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## Description

SUPERLUBE is truly a unique product. it is a NEW GENERATION HIGH PERFORMANCE EXTREME PRESSURE LUBRICANT/CUTTING OIL made specifically for the mineral exploration industry. Extensive research and development has resulted in a high performance lubricant that produces exceptional lubricating characteristics. A secondary benefit is included, a concentrated cutting oil to help improve penetration rates and prolong wear of the cutting surfaces.

## Application

SUPERLUBE forms a protective coating on the metal surfaces. It is a highly concentrated, extremely economical product that disperses rapidly into most water conditions. SUPERLUBE will reduce torque and frictional drag on the drill rods, minimizes wear on the drill string and protect the rods, barrel and inner tubes. Benefits are improved cutting actions of the bit and reamer. SUPERLUBE can be used in surface and underground mining operations.

## Advantages

- Improves penetration (ROP) and depth capacity.
- Economical and efficient.
- Environmentally friendly, biodegradable.
- Produces a thin lubricic film on the metal surfaces.

- Eliminates rod vibration.
- Stable in a range of water types.
- Will not contribute to core staining.
- Enhances the cooling action of the circulating fluid.
- Improves rod, bit and reamer life - compatible with existing mud systems.

## Typical Properties

Colour: Clear light yellow  
pH: 7.0 - 9.5  
Specific Gravity: 0.99 - 1.00

## Recommended Treatment

SUPERLUBE can be applied directly to the rod line or to the batching tank. To ensure maximum performance is achieved. SUPERLUBE should be totally homogenized into a system. Recommended usage of SUPERLUBE is 1.0 - 4.0 litres per 1000 litres. Pipe size and depth will dictate the most beneficial concentration.



## Description

PENETROL XTRA is vegetable based soluble oil that has been developed as a surface-acting rate-of-penetration (ROP) enhancer and it is designed for use in water-based drilling fluid systems. Its extreme pressure lubrication properties were designed for the operating parameters at the face of an impregnated diamond bit, giving improved penetration rates and extended bit life. A fluid system containing PENETROL XTRA promotes hydrophobic coating on both the bit and cuttings surfaces. This allows shale cuttings to slip past the bit before sticking together, improving the bit's cutting efficiency and increasing penetration rates.

## Application

PENETROL XTRA lubricates by producing a soft, tenacious film layer of micro grease on the drill string and the borehole. The concentrated wetting agents in the product enhance the cooling and wetting of the impregnated particles and accelerate removal of cuttings improving penetration rates and extending bit life. PENETROL XTRA forms white oil in water emulsion with some foaming, and has proven to work effectively in a variety of water conditions including fresh to super saline water and in variable alkalinity condition from basic to acidic.

## Advantages

- Cost effective - low concentrations required to extend bit life and to improve penetration rates and lubricity.
- BHA coating to reduce torque and drag, require fewer trips, excellent PDC bit performance in water-base fluids.
- PENETROL XTRA reduces torque and drag problems in high-angle wells by preferentially coating metal tubular to resist sticking and improve lubricity.
- PENETROL XTRA deposits a soft grease on the string that reduces wear on the drill string.
- Environmentally safe - vegetable oil based with biodegradable emulsifiers.

## Typical Properties

Physical appearance: Opaque honey coloured liquid pH (10 % Solution):  
7.0 - 8.0

## Recommended Treatment

An initial treatment of 1 - 2 % by volume should be made by injection to the circulating system. Additional material can be added up to 4 - 5 % by volume depending on the ROP achieved, amount of shale encountered, type of mud system and the interval length. It mixes very easily to form a white foaming emulsion.



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## Description

AMC 206 is a highly concentrated liquid anionic polymer designed to improve hole stability and core recovery in broken and unstable formations. It provides good viscosity in fresh make up water and provides a degree of lubrication to the drilling fluid.

## Application

AMC 206 forms a protective polymer film on the drill core and the walls of the borehole. This polymer film reduces water invasion into unstable formations that can result in hole collapse and poor core recovery. When used in conjunction with AMC K-ION and AMC PURE-VIS it forms a highly inhibitive fluid that will stabilise reactive clays and shales, promote hole stability and improved core recovery.

## Advantages

- Inhibits water sensitive formations-improves hole stability.
- Easily mixed in fresh water.
- Reduces rod vibration and torque.
- Provides lubrication.
- Highly concentrated – economical to transport.
- Better suited to freezing conditions.

## Usage

AMC 206 should initially be mixed at 0.5 – 1.5 litres per 1000 litres of make-up water, as drilling progresses the concentration of AMC 206 in the system should be varied to provide the optimum viscosity for efficient encapsulation of cuttings.



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## Description

AMC PURE-VIS is a specially formulated blend of natural and synthetic polymers suspended in a non-hydrocarbon oil base. Its unique formula produces excellent viscosity that does not shear thin at the bit and delivers superior hole cleaning when compared to other liquid polymers. It provides a complete drilling fluid without the problems associated with mixing dry polymers.

## Application

AMC PURE-VIS provides excellent viscosity and filtration control in most water types and is suitable for use as a complete mud system in areas where hole cleaning is the primary function of the fluid. The non-hydrocarbon oil base is environmentally friendly and provides lubrication to the drill rods helping to reduce vibration and torque.

In areas where swelling clays or unstable ground are a problem, the addition of AMC K-ION and AMC 133X/ AMC 206 to the AMC PURE-VIS fluid will produce a highly inhibitive fluid that promotes hole stability and improves core recovery.

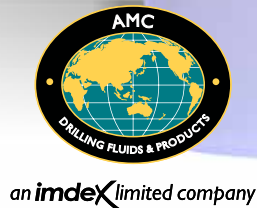
## Advantages

- Provides excellent viscosity – improved hole cleaning.
- Does not shear thin at the bit.
- Environmentally friendly.
- Easily mixed in most water types.
- Reduces rod vibration and torque.
- Provides lubrication.

## Recommended Treatment

AMC PURE-VIS should initially be mixed for 1-2 litres per 1000 litres for normal drilling and at 2 -3 litres per 1000 litres for more difficult conditions.

As drilling progresses the concentration of AMC PURE-VIS in the system should be varied to provide the optimum viscosity for efficient hole cleaning.



## Description

AMC 1300 is a liquid non-ionic polymer designed specifically for use in calcium chloride brines. It provides good viscosity, a degree of lubrication to the drilling fluid thus improving hole stability and core recovery in broken and unstable formations.

## Application

AMC 1300 forms a protective polymer film on the drill core and the walls of the borehole. This polymer film reduces water invasion into unstable formations that can result in hole collapse and poor core recovery.

## Advantages

- Inhibits water sensitive formations-improves hole stability.
- Easily mixed in calcium chloride brines.
- Reduces rod vibration and torque.
- Provides lubrication.

## Usage

AMC 1300 should initially be mixed at 1.5 - 3 litres per 1000 litres of make-up water, as drilling progresses the concentration of AMC 1300 in the system should be varied to provide the optimum viscosity for efficient encapsulation of cuttings.





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## Description

AMC POLY-PLUG is a hydrophilic polymer in granular form that absorbs up to 500 times its original volume in water. AMC POLY-PLUG is ideal for sealing zones of lost circulation and can also be used to reduce rod vibration in holes where lost returns are a problem.

## Application

AMC POLY-PLUG should be mixed with fresh water then pumped down the hole to the zone of lost circulation. The mixture will then swell and seal fissures, cracks and porous formations. Drilling can recommence after a waiting period of 30 minutes. In diamond drilling, to avoid long delays while waiting for AMC POLY-PLUG to swell down-hole, the AMC POLY-PLUG can be pre-wetted with water in a 20 - 40 litre container. Once the tube has been pulled, this solution can be poured directly down the rods. After pumping the tube down the rods drilling can recommence. This procedure can be repeated on successive core runs. In circumstances where a low water level or total loss of water returns results in excessive vibration and torque,

AMC POLY-PLUG can be allowed to swell in water or mud for 15 - 20 minutes. The resulting swollen mixture can be periodically poured down the outside of the rods and acts as a cushion between the rod string and hole casing.

## Advantages

- Easy to place in hole.
- Rapid swelling, will swell up to 500 times original volume.

## Recommended Treatment

0.5 kg - 1.5 kgs / 100 litre.

Packaging

15 kg plastic pail.

# AMC ROD GREASE EXTRA TACKY

Drill Rod Lubricant



## Description

AMC ROD GREASE XTRA TACKY is specifically formulated rod grease manufactured for use as a diamond drilling rod grease.

## Application

AMC ROD GREASE XTRA TACKY is applied to the rods before they are run back into the hole. The grease is applied to the rods by hand and heating is not required before use.

## Advantages

- Very tenacious - adheres to the rods under virtually all types of drilling conditions.
- Effective in fresh and salty water.
- Highly effective under 'dry hole' conditions i.e. where there are no fluid returns. Will not wash off, Compatible with all drilling muds.

## Recommended Treatment

Under normal drilling conditions - initially apply 1-2 kg grease for 100 meters NQ rods. As hole greases up use less after each bit change.

Dry hole conditions: use 2 - 3 kgs grease for 100 metres of NQ rods. HQ rods 3 - 4 kgs grease for 100 metres.

Hole condition will vary and grease should be used accordingly.

To remove excess grease from rods pump a caustic solution down hole and leave for several hours to soften.



an **imdex** limited company

## Description

AMC's unique SOLIDS REMOVAL UNIT (SRU) is a highly innovative alternative to traditional drilling sumps and is being described as the way of the future by drilling contractors and resource companies world wide. The closed-loop fluid system significantly reduces the environmental impact and greatly improves the efficiency of drilling operations.

## Application

Drilling fluid is circulated directly from the drill collar to the SRU's shaker or centrifuge feed tube, where drill solids are removed via the centrifuge. Cleaned drilling fluids are then returned to the drill hole. The highly mobile unit also incorporates a mixing chamber and weir system, which enables drilling fluids to be added accurately and efficiently. AMC has revolutionized conventional solids removal techniques by utilising a 9" bowl decanting centrifuge, the smallest unit available of this type in the world, and adapting it for diamond drilling applications.

## Advantages

- Considerably reduces environmental impact
- Significantly reduces water consumption
- Reduces site set-up and remediation costs
- Improves waste management
- Reduces solids in drilling fluids to <1%
- Enhances efficiency of drilling fluids, lowering consumption and costs
- Reduces wear and tear of drilling components caused by abrasive drilling fluid
- Improves health and safety conditions on-site.





## DRILLING INSTRUMENTATION

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MBI Drilling Products is a proud distributor of Reflex Instrument North America Limited.

REFLEX is the leader in innovative instrumentation and technology for drilling, data collection and analysis within the global minerals industry. REFLEX's technologies are acknowledged for their reliability, ease of use and accuracy. REFLEX customers know more, get information faster and mine smarter.



# REFLEX NORTH FINDER APS



## **Unique GPS based compass producing True North azimuth, GPS position and degree of inclination**

The REFLEX NORTH FINDER APS [Azimuth Pointing System] is not affected by local magnetic interference. It allows Drilling Operators to align drill rigs and survey instruments and more accurately measure drill hole collars. Accurate collar azimuth is vital and can have the greatest impact on the final end-of-hole coordinates. Geologists are able to use the NORTH FINDER APS to pick up previous collars and accurately record starting dip and azimuth coordinates.

The REFLEX NORTH FINDER APS features UTM and latitude/longitude coordinates, sub-metre GPS position accuracy, GPS Integrity Parameter for more accurate azimuth and a long life battery providing more than 6 hours run time.

Collar and directional data from the REFLEX NORTH FINDER APS is transferred via Bluetooth communication to the PDA, and can be downloaded from the PDA to PC [optional].



**UNAFFECTED BY LOCAL  
MAGNETIC ANOMALIES**



### **ACCURATE**

The REFLEX NORTH FINDER APS is accurate to 0.5° of True North Azimuth. Where GPS integrity is excellent, the accuracy can be less than 0.2°. The unit is built with three accelerometers for exceptional tilt accuracy. The REFLEX NORTH FINDER APS reduces the risks and associated costs of human error in recording drill collar measurements.



### **COST SAVING**

When using the REFLEX NORTH FINDER APS, correct drill collar measurements can be obtained easily and accurately. Land based surveys are not required which saves significant costs for the project.



### **EASY TO USE**

The REFLEX NORTH FINDER APS does not require specialized survey teams to achieve accurate results. Field staff are able to competently operate the system, with no specialized training required. It is also easy to set up and can be mounted on a pre-positioned rig, tripod or other object with no overhead obstructions to avoid signal interference.

## REFLEX NORTH FINDER APS SPECIFICATIONS

<i>Azimuth accuracy</i>	0.5° nominal < 0.2° with excellent GPS integrity > 1.0° with poor GPS integrity [GPS integrity is automatically calculated by the APS in real time and displayed on the LCD]
<i>Tilt accuracy</i>	± 0.2°
<i>GPS coordinate accuracy</i>	< 60cm [2 ft] with SBAS correction [WAAS, EGNOS, MSAS] < 2.5m [8 ft] autonomous
<i>Dimensions</i>	10 cm high x 13 cm wide x 66 cm long [4" x 5" x 26"]
<i>Weight</i>	1.6 kg [3.5 lbs] - no attached options
<i>Temperature range</i>	-30° to 60° C [-22° to 140° F]
<i>Sealing</i>	NEMA 4 [IP 65]
<i>North finder mounting plate</i>	¼" - 20 tripod threads [2] and 5/8" - 11 tribrach thread
<i>Internal battery</i>	12 V DC rechargeable lithium ion [~ 6.5 hrs operation] 1.5 hrs max charge time with portable charger
<i>Communications</i>	Serial output with cable for logging installation or performance data Bluetooth Class 1 User selectable National Marine Electronic Association [NMEA] data formats for each mode Laser input port [APS automatically goes into laser offset mode when the laser is triggered]
<i>Options</i>	Rig alignment attachment Tripod Tripod geared head with azimuth, tilt and roll adjustments Hard sided shipping case Laser range finder kit [LTITruPulse laser rangefinder] and mounting bracket 1.5 - 4 X optical sighting scope Archer PDA handheld for bluetooth readout and transfer to PC.



# REFLEX TN14 GYROCOMPASS



## **Pre-load drill hole co-ordinates for fast, accurate and repeatable rig alignment in 15 minutes or less**

The REFLEX TN14 GYROCOMPASS improves productivity dramatically by quickly and accurately aligning drill rigs in surface and underground operations.

The REFLEX TN14 GYROCOMPASS takes approximately 12 minutes to settle, and a drill rig can then be aligned to the correct azimuth and dip within 5 minutes.

The unit is supplied with three batteries for on-site changeover to minimise time.

With a Roll/Pitch range of  $\pm 90^\circ$ , the REFLEX TN14 GYROCOMPASS has the flexibility to improve productivity in all drilling conditions. Without the roll & pitch limitations experienced by some rig alignment systems, azimuth integrity remains high at ALL angled drilling applications.



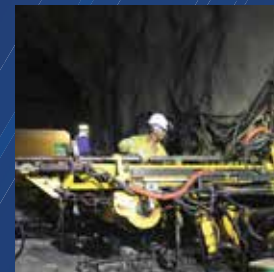
### **WORLDWIDE DATA ACCESS**

Drill hole co-ordinates can be entered directly into the hand held on site or pre-loaded from any location worldwide and sent directly to the rig using REFLEX HUB. Drill hole alignment data is transferred back into REFLEX HUB, so Geologists can effectively manage their drilling program remotely, without leaving their office; no physical file transfers are required. Pre-loading co-ordinates reduces the risks and associated costs of human error caused by entering incorrect co-ordinates or inaccurate survey marking.



### **VISUAL INTERFACE**

The REFLEX TN14 GYROCOMPASS has a large visual interface built into the wireless handheld unit, showing live movement, through clear, simple graphics, to guide alignment and improve operator safety. The visual interface makes it easy to quickly see which direction the rig needs to move to accurately and easily align to the correct dip and azimuth, improving alignment efficiency. The wireless handheld unit means no cables are required, ensuring a safer operating environment.



### **FULLY ADJUSTABLE CLAMPING MECHANISM**

The easy to use clamping mechanism allows for a single person to position the REFLEX TN14 GYROCOMPASS onto the drill rods. A single handed movement lowers the clamp lever to securely fasten the rig aligner to the drill rig. The clamp is fully adjustable and will suit rod sizes from BQ\* to HQ\*.

## REFLEX TN14 GYROCOMPASS SPECIFICATIONS

<b>Settling Time</b>	
Settling time	Approximately 12 minutes
<b>Accuracy</b>	
Heading	+/- 0.2°
Dip/Pitch	0.05°
<b>Operating Range</b>	
Operating time	More than 15 hours
Operating temperature	-10°C to +60°C
Storage temperature	-40°C to +85°C
Roll/Pitch range	+/-90°
Environment	95% humidity

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# REFLEX EZ-TRAC XTF



## **Instant survey data now sent directly to a secure hub**

The REFLEX EZ-TRAC XTF is a digital downhole survey instrument that has been designed to be multifunctional, easy to operate, highly accurate, robust and reliable.

By operating with the new EZ-COM Blue controller, survey data can now be transferred via mobile networks directly to anywhere in the world, instantly.

The REFLEX EZ-TRAC XTF is easy to operate and minimises the unproductive time required to set up for surveying. It only requires aluminum extension rods to be added to place the instrument away from magnetic interference caused by drilling equipment and it is ready to use. The user friendly EZ-COM Blue makes the survey easy to set up and execute, with results automatically calculated and displayed on the handheld unit, eliminating the risk of human error.



**QUICK AND SIMPLE PROCESSING,  
PROVIDING ACCURATE DATA**



### **MULTIFUNCTIONAL**

By using the new EZ-COM Blue controller the REFLEX EZ-TRAC XTF comes with multi-shot as standard while still being able to perform the quickest single shot surveys the industry has seen. As well as being operated by the dedicated EZ-COM Blue device the EZ-TRAC XTF can also be operated by a rugged RECON pda.



### **HIGHLY ACCURATE**

The REFLEX EZ-TRAC XTF performs surveys in all directions – including vertical – with high accuracy. Orientation of downhole motors and wedges have been streamlined to further simplify the process and reduce costly errors by using the External Tool Force [XTF].



### **ROBUST AND RELIABLE**

The REFLEX EZ-TRAC XTF now has an improved internal shock system built to withstand harsh treatment. The 35 mm integrated pressure barrel is totally sealed against water entry and has a depth rating of 4,000m. The robust and durable design of the REFLEX EZ-TRAC XTF is now CE compliant and ensures a minimum amount of time and cost required for maintenance and repair.

## REFLEX EZ-TRAC SPECIFICATIONS

Dimensions	<ul style="list-style-type: none"> <li>Outer diameter 35 mm</li> <li>Length 1,030 mm</li> <li>Weight 4.7 kg</li> </ul>
Azimuth [direction]	<ul style="list-style-type: none"> <li>Range 0 to 360°</li> <li>Accuracy <math>\pm 0.35^\circ</math></li> </ul>
Dip [inclination]	<ul style="list-style-type: none"> <li>Range <math>\pm 90^\circ</math> from horizontal</li> <li>Accuracy <math>\pm 0.25^\circ</math></li> </ul>
Gravity roll [rotation/toolface]	<ul style="list-style-type: none"> <li>Range 0 to 360°</li> <li>Accuracy <math>\pm 0.25^\circ</math></li> </ul>
Magnetic roll [rotation/toolface]	<ul style="list-style-type: none"> <li>Range 0 to 360°</li> <li>Accuracy <math>\pm 0.35^\circ</math></li> </ul>
Tool magnetic field	<ul style="list-style-type: none"> <li>Range 0 to 100,000 nT</li> <li>Accuracy <math>\pm 50</math> nT</li> </ul>
Magnetic dip	<ul style="list-style-type: none"> <li>Range <math>\pm 90^\circ</math> from horizontal</li> <li>Accuracy <math>\pm 0.25^\circ</math></li> </ul>
Depth rating	<ul style="list-style-type: none"> <li>4,000 m vertical in fresh water</li> </ul>
Temperature rating	<ul style="list-style-type: none"> <li>Full accuracy 0°C to +60°C</li> <li>Operating -30°C to +75°C</li> <li>Storage -45°C to +85°</li> </ul>
Battery	<ul style="list-style-type: none"> <li>Non-rechargeable lithium battery pack</li> </ul>
Approximate battery life:	
Infrequent use	<ul style="list-style-type: none"> <li>4 years</li> </ul>
Normal use	<ul style="list-style-type: none"> <li>2 years</li> </ul>
Heavy use	<ul style="list-style-type: none"> <li>1 year</li> </ul>



# REFLEX EZ-A



## **Instant survey data accessible on site**

The REFLEX EZ-A is a digital downhole survey instrument, capable of both single and multi-shot proficiency. With an operating core grade of AQ\* value, the multi-shots 25mm barrel can be used for various slimhole applications in all-angle surveys. With an inbuilt infrared communication link the REFLEX EZ-A is able to transfer vital downhole data quickly and efficiently via a handheld computer, allowing instant, comprehensive analysis.



QUICK AND SIMPLE PROCESSING,  
PROVIDING ACCURATE DATA



## **SINGLE AND MULTI-SHOTS FUNCTION**

With both single and multi shot capabilities, the REFLEX EZ-A has the capacity to survey from one to five single shots and up to 9,000 multi-shots depending on the desired mode. The added gravity roll angle and magnetic tool face functions can be used for the use with orientation wedges, down hole and directional motors. The data captured by the REFLEX EZ-A provides for reliable accurate, all angle surveys within the mining, exploration, and construction industries.



## **ALL ANGLE SURVEYING**

For each shot taken, three magnetic field and three gravity field components are recorded, together with temperature, time and date. Paired with the hand held device this allows comprehensive analysis and presentation of survey data on site. Survey data is displayed in tabular form, as well as in 2D and 3D graphical form. The 3D presentation allows the user to get a realistic view of the perspectives and offers interactive actions such as rotation and zoom.



## **USER FRIENDLY**

REFLEX EZ-A has been designed to be user friendly. The instrument has a built-in interface with editable options managed by a single control switch in addition to a handheld device. An infrared connection eliminates the need for cables. The REFLEX EZ-A is a digital device which immediately presents survey data without any unhealthy chemicals, time-consuming film processing, compass roses or complicated calculations.

## REFLEX EZ-A SPECIFICATIONS

Operating Features	<ul style="list-style-type: none"> <li>• Single and multi-shot modes</li> <li>• Inclinator</li> <li>• Variable time delay: 5 to 32 sec</li> <li>• Self contained, battery powered</li> </ul>
Azimuth (direction)	<ul style="list-style-type: none"> <li>• Range 0 to 360°</li> <li>• Accuracy +/- 0.35°</li> </ul>
Roll Angle	<ul style="list-style-type: none"> <li>• Tool face reads to 0.25°</li> <li>• Tool face gravity, in degrees</li> <li>• Tool face magnetic, in degrees</li> </ul>
Magnetism	<ul style="list-style-type: none"> <li>• Magnetic field strength, in nanoTesla</li> <li>• Magnetic dip, in degrees</li> </ul>
Pressure	<ul style="list-style-type: none"> <li>• 6,000 psi (41.4 MPa) or 4,000 metre water pressure without pressure</li> <li>• Barrel 20,000 psi (137.9 MPa) or 13,800 metre water pressure with 36/38 mm pressure barrel</li> </ul>
Temperature	<ul style="list-style-type: none"> <li>• Full accuracy between 0° C to +60° C [+32° F to +140° F]</li> <li>• Operates to +70° C [+158° F] ambient temperature without heat shield</li> <li>• Operates to +177° C [+350° F] ambient temperature with heat shield</li> <li>• Storage -20°C to 85°C [+31°F to +140°F]</li> </ul>
Solid State Electronics	<ul style="list-style-type: none"> <li>• Down hole electronic recording</li> <li>• Non-volatile memory and data retention</li> <li>• Thermal modelling for accurate calibration over the entire temperature range</li> </ul>
Dimensions	<ul style="list-style-type: none"> <li>• Outer diameter 25.0 mm (1.0")</li> <li>• Length 790 mm (31.126")</li> <li>• Weight 1.7 kg (1.2 lbs)</li> </ul>
Optional Equipment	<ul style="list-style-type: none"> <li>• 3 extension rods, each 1.5 m long, 36mm O.D.</li> <li>• Landing collar (AQ* - PQ* sizes)</li> <li>• Pin Spear, Swivel or A rod attachment</li> <li>• Bull plug and Mule shoe</li> <li>• Pressure barrels 36 &amp; 38mm</li> </ul>
Handheld Computer	<ul style="list-style-type: none"> <li>• REFLEX EZ-COM</li> </ul>
PC/Laptop	<ul style="list-style-type: none"> <li>• Windows</li> <li>• REFLEX SProcess</li> <li>• REFLEX AQS communication software</li> </ul>

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# REFLEX EZ-SHOT

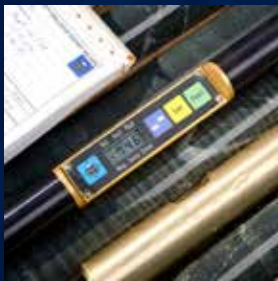
## On site access to survey data

The REFLEX EZ-SHOT is a single shot instrument designed to identify the deviation of boreholes. The REFLEX EZ-SHOT is a totally self contained instrument that is controlled via an integrated keypad membrane and an LCD display.

The REFLEX EZ SHOT fits most standard commercial running gear from BQ\* to PQ\*. Survey kits can be provided in two standard configurations, 36 and 38mm.



FAST OPERATION, IN ALL  
DIRECTIONS



## SEVEN PARAMETERS IN ONE SHOT

The REFLEX EZ-SHOT is a single shot instrument, which quickly provides information about the borehole. The instrument measures seven parameters in one single shot: azimuth, dip, roll angle relative gravity, roll angle relative magnetic north, temperature, magnetic field strength and magnetic dip angle. As soon as the instrument has been retrieved from the borehole, results can be read on the integrated display without an external computer.



## ACCURATE

The REFLEX EZ-SHOT is a high precision magnetic and gravimetric instrument. Three fluxgate magnetometers measure the local geomagnetic field and provide the horizontal component – the azimuth – relative to magnetic north. Three extremely accurate accelerometers provide the vertical component – the dip – and the rotation relative gravity. The REFLEX EZ-SHOT includes a Quality Check function with a predetermined magnetic threshold to highlight survey data that is outside the range of acceptable magnetic interference.



## ROBUST AND RELIABLE

The REFLEX EZ-SHOT has been specifically designed to be robust, reliable and easy to use. The REFLEX EZ-SHOT is totally self-contained, with integrated electronics, control panel and batteries. No cables, battery charging, external computer, regular maintenance, or moving parts to wear and tear in harsh, on site conditions. Low power consumption in combination with a long-life lithium battery pack, allows many years of normal use between battery replacements.

## REFLEX EZ-SHOT SPECIFICATIONS

Dimensions	<ul style="list-style-type: none"> <li>Outer diameter 31.7 mm</li> <li>Length 846 mm</li> <li>Weight 2 kg</li> </ul>
Operating features	<ul style="list-style-type: none"> <li>Single shot</li> <li>Orientation</li> <li>Azimuth and dip</li> <li>Azimuth quality check</li> <li>Magnetic profile</li> <li>Thermal profile</li> </ul>
Range and typical error	<ul style="list-style-type: none"> <li>Azimuth <math>0-360^{\circ} \pm 0.5^{\circ}</math></li> <li>Dip <math>\pm 90^{\circ} \pm 0.2^{\circ}</math></li> <li>Roll angle, relative gravity <math>0-360^{\circ} \pm 0.2^{\circ}</math></li> <li>Roll angle, relative magnetic N <math>0-360^{\circ} \pm 0.5^{\circ}</math></li> <li>Temperature <math>-40</math> to <math>+85^{\circ}\text{C} \pm 1</math></li> <li>Magnetic field strength <math>0-100,000</math> nT <math>\pm 50</math> nT</li> <li>Magnetic dip angle <math>\pm 90^{\circ} \pm 0.4^{\circ}</math></li> </ul>
Timer	<ul style="list-style-type: none"> <li>Survey start delay selectable from 1-1,000 min 1 minute increments</li> </ul>
Temperature rating	<ul style="list-style-type: none"> <li>Total range <math>-20^{\circ}\text{C}</math> to <math>+85^{\circ}\text{C}</math></li> <li>Highest accuracy achieved between <math>0^{\circ}\text{C}</math> &amp; <math>+60^{\circ}\text{C}</math></li> <li>Shock rating 6,000 g, 0.5 ms, <math>\frac{1}{2}</math> sine</li> <li>Pressure rating 2,250 psi [16 MPa]</li> <li>[36 mm pressure barrel]</li> <li>6,000 psi [41 MPa]</li> <li>[38 mm pressure barrel]</li> </ul>
Battery	<ul style="list-style-type: none"> <li>Internal Lithium TCL, 7.2 V, 2.7 Ah 5 year service life (2,500 surveys of 1 hour each)</li> </ul>
Electronics	<ul style="list-style-type: none"> <li>Tri-axial solid state accelerometers</li> <li>Tri-axial solid state fluxgate magnetometers</li> </ul>
Memory	<ul style="list-style-type: none"> <li>Memory capacity 50 surveys</li> </ul>
Optional software	<ul style="list-style-type: none"> <li>REFLEX SProcess</li> </ul>

Please contact your local REFLEX representative for more information on the range of running gear, survey kits and orientation equipment available from REFLEX.

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# REFLEX GYRO

## **Directional surveying in all environments**

*The REFLEX GYRO is a complete downhole surveying instrument capable of surveying in all environments, magnetic and non-magnetic.*

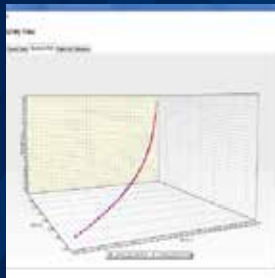
*With proven reliability and accuracy, it utilises a digital surface referenced MEMS-gyro. Survey data, once brought to the surface, can be transferred from the onboard memory to the field PC via a high-speed Bluetooth connection. The full set of data readings can be processed using the advanced REFLEX GMIT5 navigation software, where users can tabulate, plot and export data into various formats for enhanced decision making.*

**PROVEN RELIABILITY IN DELIVERING ACCURATE SURVEY DATA**



### **Designed for operation by Drillers**

The REFLEX GYRO has been designed to be simple to use yet with highly sophisticated technology inside to deliver exceptionally accurate survey results. It can be fully operated by drillers on site for cost effective surveying. As a completely remote and fully time stamped survey tool, it doesn't require a live wireline or additional equipment such as winches for operation.



### **Superior survey data**

Highly accurate survey data is obtained through customised 'Anti-Roll' running gear and centralisers, ensuring the highest quality azimuth data, including in vertical surveying. A large range of data types, including directional data (azimuth and dip), temperature, time and roll are recorded in the onboard memory. Reports can be run through any Windows operating system and are available in xls, dxf, ASCII and ODS formats. The data cannot be altered and can be used for QA/QC and audit purposes.



### **Survey in all environments and directions**

The REFLEX GYRO is not affected by magnetic interference and can be used inside all types of drill rods or in magnetically disturbed ground, eliminating the need to use non magnetic drill pipe configurations. It measures in all directions and is not affected by inclination, and can therefore be used in surface and underground operations and wireline or conventional drill rigs.

## REFLEX GYRO

Dimensions	O.D. 32mm, L 807mm
Weight	1.1kg
Operating temperature	0°C to +70°C
Digital interface	High speed Bluetooth
Power source	High capacity re-chargeable NiMH battery packs
Operating time	<8 hours depending on environmental conditions
Dip [Inclination]	+/- 0.2°
Azimuth, gyro**	+/- 0.5°
Roll	+/- 0.3°

## RUGGED FIELD PC

Operating system	Windows 7
Other features	Built-in high speed Bluetooth, WLAN

## OPTIONAL EQUIPMENT

Other features	Vertical centralisers
	APS
	Conventional running gear
	Digital depth encoder
	High temperature version available



# REFLEX MAXIBOR II

## Optical borehole survey system

The REFLEX MAXIBOR II is an advanced optical instrument for accurate surveying of drill holes and tunnels in magnetically disturbed environments. The REFLEX MAXIBOR II is the ultimate surveying tool for long inclined and horizontal holes.

The REFLEX MAXIBOR II is highly versatile, with an outside diameter of only 44mm, it can be used in a variety of applications; it can be run on rods or wireline, or pumped into the hole and optional centralisers are available for measurement inside large diameter holes.

The REFLEX MAXIBOR II can be set to measure inclination and azimuth every 1.5 or 3m and can be run and results presented in either metres or feet.

An infrared data link ensures reliable and rapid data communications, and Windows based software improves data processing ability in the field.



EASY TO USE, LOW COST TO  
OPERATE



### HIGHLY ACCURATE

The REFLEX MAXIBOR II is a highly accurate surveying tool with solid state silicon accelerometers guaranteeing precision and providing direct inclination and roll information. The tool requires no calibration, manual calculations or instrument drift corrections, minimizing the risk of human error. The REFLEX MAXIBOR II surveys both in and out of the hole for instant QA/QC repeatability check.



### IMPROVE PRODUCTIVITY

The REFLEX MAXIBOR II is designed for simple, straightforward operation, which reduces survey time and costs. Using the Maxibor II, there is no need to pull drill rods before the survey and it is quick to use, a 100m survey can be performed in only 20 minutes [depending on the rig]. Survey results are automatically calculated and are available for immediate presentation on site.



### ROBUST CONSTRUCTION

The REFLEX MAXIBOR II has been designed to withstand harsh on site conditions, delivering reliable operation and minimizing down time. Fully sealed electronics and optics reduce the risk of accidental water entry while robust optics eliminate the need for continual re-calibration. Interchangeable industrial alkaline battery packs provide years of normal use before replacement is required, due to the low power consumption of the unit.

## REFLEX MAXIBORE II SPECIFICATIONS

Dimensions	<ul style="list-style-type: none"> <li>• Tool diameter 44.0 mm</li> <li>• Tool length 1,200 mm</li> </ul>
Optics	<ul style="list-style-type: none"> <li>• Optical CMOS image sensor</li> <li>• Light source 6 x high intensity LED</li> <li>• Exposure interval minimum 5s typical 10s</li> </ul>
Solid State Electronics	<ul style="list-style-type: none"> <li>• Downhole electronic recording</li> <li>• Non-volatile memory and data retention</li> <li>• Thermal modelling for accurate calibration</li> </ul>
Batteries	<ul style="list-style-type: none"> <li>• Interchangeable industrial alkaline battery pack</li> </ul>
Memory	<ul style="list-style-type: none"> <li>• Memory capacity over 16 hours at 10 second intervals</li> </ul>
System Accuracy	<ul style="list-style-type: none"> <li>• Better than 1:1000 relative to hole length</li> </ul>
Pressure and Shock Rating	<ul style="list-style-type: none"> <li>• 3,500 metre water pressure gives 50% safety margin</li> <li>• Shock survival 6 000g, 0.5 ms 1/2 sine</li> </ul>
Operating Temperature	<ul style="list-style-type: none"> <li>• -40°C to +65°C [-4°F to +150°F] (with lithium batteries)</li> <li>• -20°C to + 65°C [-4°F to + 150°F] (with alkaline batteries)</li> </ul>
Standard Equipment	<ul style="list-style-type: none"> <li>• Camera probe</li> <li>• Reflector tubes</li> <li>• Reflector rings</li> <li>• Reflector tube couplings</li> <li>• Bottom coupling</li> <li>• Camera cap</li> <li>• Sealing ring exchanger device</li> <li>• Reflector ring extractor</li> <li>• TDS Recon Pocket PC</li> <li>• REFLEX Maxibor II Pocket PC Application</li> <li>• REFLEX SProcess software</li> <li>• REFLEX Maxibor II Manual</li> <li>• Spare reflector material</li> <li>• Spare sealing rings</li> <li>• Silicon grease</li> <li>• Transport boxes</li> </ul>
Optional Equipment	<ul style="list-style-type: none"> <li>• Pin spear coupling</li> <li>• Top coupling with blank end</li> <li>• Swivel sub assembly</li> <li>• Landing sub assembly</li> <li>• USB 2.0 Reader/Writer</li> <li>• Stylus pen</li> <li>• Centralisers</li> </ul>



# REFLEX ACT III

## Core orientation system delivering exceptional accuracy

REFLEX ACT III is a digital core orientation system that records the orientation of the core sample and other key data in core drilling operations. It has a patented rapid descent system that reduces time to complete core recovery. It delivers exceptional accuracy, while being easy to use and reliable in harsh field conditions and is the preferred core orientation system for drillers and geologists worldwide. It's high level of data accuracy leads to better understanding of the geological structure, ultimately resulting in enhanced drill program management and geotechnical planning.

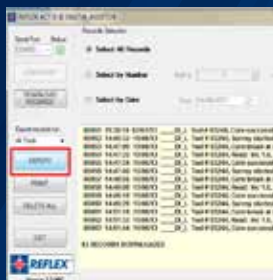


COMPATIBLE WITH AUTO  
DRILL SYSTEMS



### RUGGED AND RELIABLE

The REFLEX ACT III is designed to withstand the harshest conditions and treatment in the bottom-of-hole environment. It has a hardened steel outer casing and heat treated threads. Components are shock tolerant and able to withstand up to 20 000G of force. The unit can operate in temperatures of up to 80°C. It has a separate purpose designed hand held controller for communication and state-of-the-art control panel technology which are water resistant. Built with no moving parts and high quality lithium batteries, the REFLEX ACT III needs no maintenance and will operate for approximately 12 months under normal use.



### ACCURATE DIGITAL DATA COLLECTION

The REFLEX ACT III controller displays accelerometer data collected via time stamping technology, including depth values, [when entered at each orientation], inclination, roll, gravity, temperature and all button presses. Unique sequence logic prevents incorrect data and also eliminates operator error, ensuring more accurate data. Data stored on the controller cannot be manipulated and using REFLEX's digital auditor software can be used for QA/QC and audit purposes, as well as operational performance and production analysis.



### IMPROVED OPERATIONAL EFFICIENCY

The REFLEX ACT III is designed to improve productivity on site. It is supplied as a two tool system, while one tool is down the hole, the other is ready for the next run, ensuring no interruption to drilling operations. Core samples are easily matched with orientation data using a spirit level jig, bottom or top orientation can be accurately transferred to any core sample. The controller also indicates if the downhole unit has encountered temperatures above it's safe operating range, displayed on the LCD screen during data retrieval.

## REFLEX ACT III

### CORE SIZES

NQ\*, NQ\*2, NQ\*3, HQ\*, HQ\*3, PQ\*, LTK60, BQ\*, BQ\*TK®, W/L56, W/L66, W/L76, BTW, NTW

### DIMENSIONS

Length	Between 300 to 400mm
Control unit	
Outer diameter	42mm
Length	300mm
Weight	Average weight per kit is 30kg

### ACCURACY

Range	0 to $\pm 88^\circ$ dip
Accuracy	$\pm 1^\circ$

### DEPTH RATING

Downhole instrument:	
Housing pressure	Up to 10 000psi

### TEMPERATURE RATING

Downhole instrument:	
Operating	-30 °C to +80 °C
Control unit:	
Operating	-30 °C to +50 °C

### BATTERY

Non-rechargeable lithium battery pack. Approximate battery life; downhole instrument:

Infrequent use	Up to 2 years
Normal use	Up to 12 months
Approximate battery life; control unit:	
Infrequent use	> 2 years
Normal use	2 years

\*Q® is a registered trademark of Boart Longyear that refers to its Q® Wireline System. The use of the Q mark herein is not intended to equate the Q mark with a particular hole size but rather to indicate that REFLEX's products and services are designed and intended to be used with Boart Longyear's Q® Wireline System, as well as other wireline systems available in the industry that are comparable to that of the Q® Wireline System.

# REFLEX SMART WEDGE



## **Cut wedge setting time in half at all depths**

The REFLEX SMART WEDGE is the next generation of the original steel wedge bypass system. The unique new anchor system and self-orienting feature are specifically designed to save time and reduce costs.

The new anchor system combines both the wood and mechanical plugs, eliminating one full rod trip from the wedge setting process. This saves up to a full shift from the process, reducing operating costs significantly.

The self-orienting feature is set to the correct tool face on the surface and holds the wedge in the desired tool face all the way down the hole, saving an additional four hours at depth.

REFLEX's SMART WEDGE is the ultimate tool for deep, inclined holes, cutting the time of wedge setting at all depths in half and delivering significant time, productivity and cost savings.

**REFLEX SMART WEDGE IS SELF ORIENTATING,  
SAVING UP TO FOUR HOURS AT DEPTH.**



### **SAVE TIME**

REFLEX's SMART WEDGE reduces the time required to set the wedge bypass system from four hours up to a full shift. An additional four hours is saved through the self orientation feature at depth, significantly reducing operating costs.



### **EASY TO USE**

The REFLEX SMART WEDGE is constructed in 1.5m sections for easy handling and assembly, both on the surface and underground. The lighter wedge and new blunt nose design also make it safer and easier to handle.

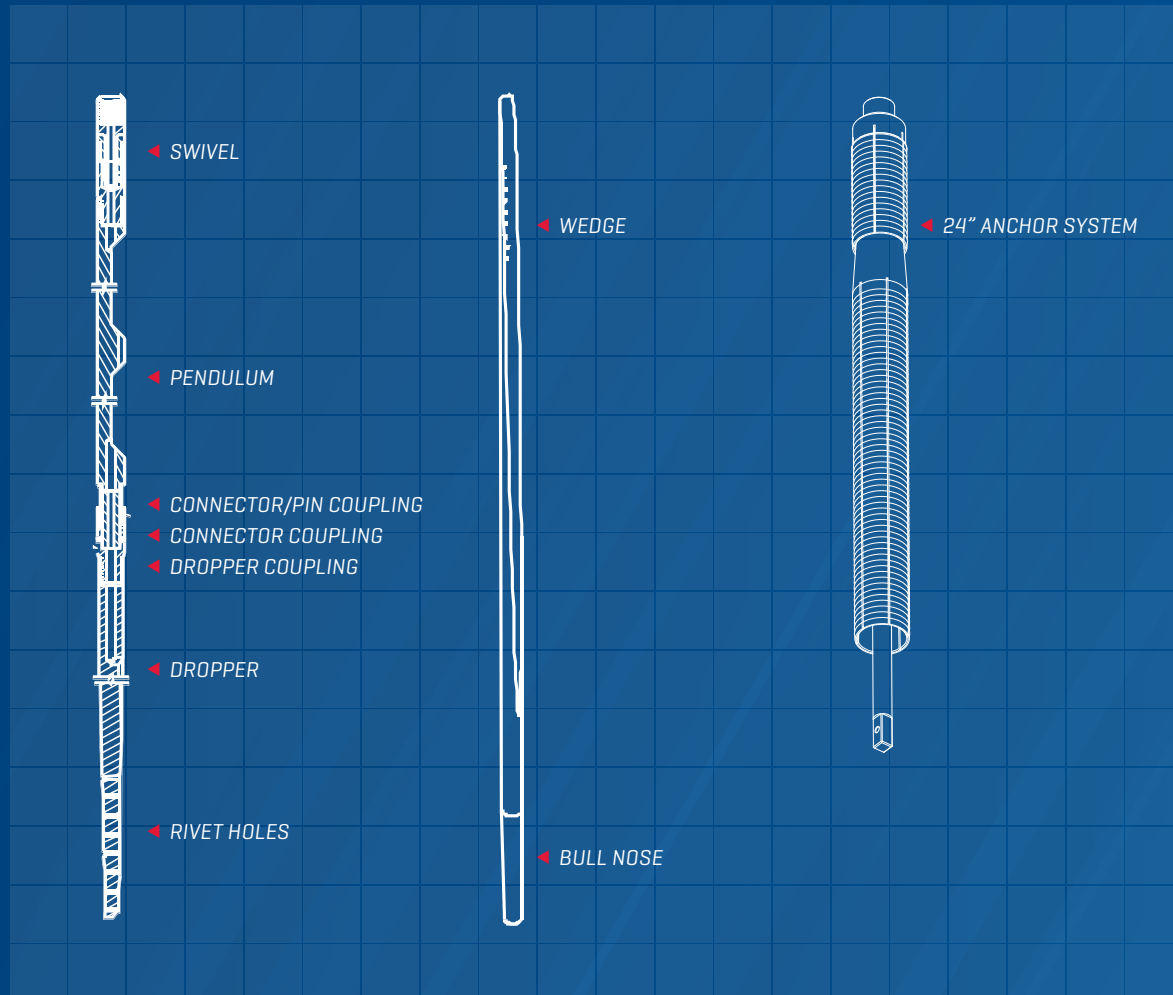


### **ACCURATE**

The REFLEX SMART WEDGE's new gravity orientation system has been proven to hold the tool face within 5 degrees of the selected orientation target. You can be confident the REFLEX SMART WEDGE will not only set accurately, but will also save time.



## HEADING





# REFLEX CONNECT



## **Survey data straight from the rig to the office**

REFLEX CONNECT allows seamless transfer of survey data from the drill rig to a secure, central database for review in near real-time.

It combines the accuracy and performance of REFLEX instrumentation, with the convenience of remote access to data through REFLEX HUB.

Survey and geochemical data is transferred automatically from the digital instrumentation to REFLEX HUB via a mobile device. Geologists can view and approve survey records and then commit them for storage. Data is then available for incorporation with other core geological data sets or exporting directly into mining and GIS software packages.

Survey data can be accessed in REFLEX HUB via a web browser from any location worldwide, in near real-time, with no need to travel to the rig.

RAPID BLUETOOTH  
SURVEY DATA  
TRANSFER INTO  
REFLEX HUB





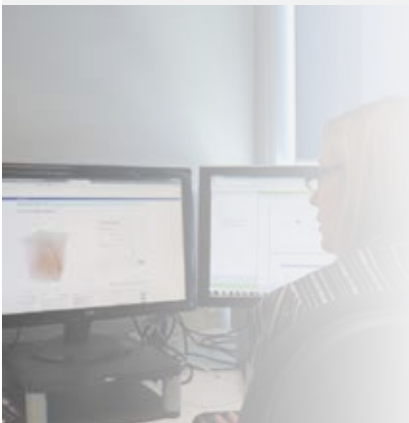
### SEAMLESS DATA TRANSFER

Survey or geochemical data are transferred seamlessly via Bluetooth from the survey tool or XRF to any Android or iOS mobile device, and then transmitted using the REFLEX CONNECT submission form or by attaching to the Daily Drill Report (DDR) to the secure, central REFLEX HUB database. Data can then be exported directly into mining or GIS software packages, in near real-time.



### RAPID ACCESS TO DATA

Once data is transmitted to REFLEX HUB, geologists receive immediate email notification and have instant access to the information for QC review and approval, before submitting records to the database in REFLEX HUB. Decision making on drill hole activity can now be managed interactively and no longer needs to wait for data transfer from site or inefficient manual data entry, delivering greater operational productivity.



### IMPROVED DATA ACCURACY

Manual entry and multiple handling of data are eliminated, improving accuracy and reducing time wasted on processing incorrect data. Survey data is allocated to the correct Drill Hole ID, as controlled by the REFLEX HUB Drillhole management system. Survey records can be reviewed using the QC guidelines to ensure only correct records are imported into the storage databases and issues with surveys can be identified immediately so that data can be re-collected by the drillers where necessary. A single data set is then accessible from any location worldwide.



# REFLEX HUB

## ***Accurate field data, with real time access from any location***

*REFLEX HUB is a complete Software-as-a-Service solution for the collection, storage and reporting of critical operational data.*

*REFLEX HUB incorporates mobile data collection to ensure accurate capture of field data. Data is seamlessly transferred from the drill site to a secure, central database where it can be accessed via a web browser from any location worldwide.*

*It is ideal for applications across the mining cycle, providing efficient drill hole and sample data management; from daily reporting requirements, including shift reports, pre-starts, safety reports, site inspections and employee accreditation, to geochemical logging, analysis and QA reporting.*

*REFLEX HUB provides a single source of truth, accessible globally, improving data quality and control, and minimizing issues with downstream data management. Combined with real time data access, it dramatically improves operational efficiency.*



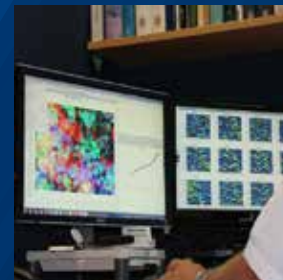
### ***Integrated system***

REFLEX HUB collects and manages data from selected REFLEX downhole survey and core orientation tools, REFLEX TN14 GYROCOMPASS rig aligner and REFLEX XRF, providing the option for greater visibility of all data associated with a single drill hole, or an entire operation, and improving management decision making.



### ***Paperless Solution***

Field data is captured, transmitted and stored electronically in REFLEX HUB's secure database. No paperwork is required, removing associated errors and inefficiencies from the workflow.



### ***Instant data***

Once data is transmitted into REFLEX HUB, it is available instantly to browse, export, report or map, from any internet connection worldwide. Data can be reviewed in real-time and decisions can be made immediately.



### REFLEX HUB DRILLING

Streamlines the collection of daily drilling information, reports are completed and automatically transmitted for approval and storage in the central database.

- Ideal for managing daily shift reports, pre-starts, safety reports, site inspections, maintenance, consumables and equipment use reporting;
- Easy to implement and use, REFLEX HUB operates on iOS and Android mobile platforms. Drillers require only 20 minutes training to competently use the system;
- Improves efficiencies and minimizes client enquiries with in-built data validation on entry ensuring accurate data is provided every time;
- Real time visibility of drilling information and vital statistics including meters drilled, utilization, chargeable activity and consumables. View the entire fleet, or drill down to one rig or driller.



### REFLEX HUB EXPLORATION & PRODUCTION

Ensures accurate logging of drill hole data and surface sample data in the field, pit or underground, with all input activities comprehensively tracked and audited.

- Standardizes data collection and logging, no need to combine data from various sources, types or formats;
- Improves accuracy through data validation on entry, trapping duplications and missing information;
- Automated, industry best practice QA/QC reporting, producing consistent, comprehensive reports in minutes, not weeks;
- Real time visibility of critical geological data, QA reports and drilling information for operations management and planning;
- Supports the requirements of the regulatory frameworks, such as NI-43101, JORC and SAMREC.



### REFLEX HUB MINING SERVICES

Removes paper based collection of activity data for companies providing services to the mining industry to improve efficiencies and deliver an exceptional level of service to the client.

- Ideal for safety audits, employee accreditation testing, environmental assessments, asset management and maintenance reporting;
- Provides real time visibility of all key statistics, multi-customer and multi-site, for operations management and planning;
- Minimizes risks associated with paper based systems, including lost paperwork and processing delays;
- Ensures timely data throughput for compliance to service provision conditions;
- Enhances productivity through quicker, more accurate data collection and transfer.

# REFLEX XRF



## **Real time geochemical information accessible from any location**

The REFLEX XRF combines instant geochemical results from the hand-held XRF with remote access provided through REFLEX HUB's data management solution.

Additionally, the REFLEX CONNECT-XRF application ensures data is transmitted directly from the field to REFLEX HUB to ensure robust and streamlined data availability.

Results from the field are converted to interpretive products within REFLEX HUB, all available in real time for effective, timely decision making.

**SIGNIFICANT WORKFLOW IMPROVEMENT, INSTANT GEOCHEMISTRY AND DATA MANAGEMENT**



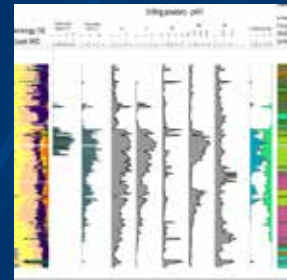
## **REAL TIME INFORMATION AND ANALYSIS**

The REFLEX XRF seamlessly collects and transmits geochemical data to REFLEX HUB, where in-built analytics produce derived outputs that can be used immediately for logging, domaining and classification. Geologists no longer need to wait up to three months for off-site assay results to determine their next move.



## **SIGNIFICANT TIME AND COST SAVINGS**

Simplified workflows and instant geochemical analysis results provide significant time and cost savings. Decisions can be made without delay, based on facts, to better manage drilling programs and save costs. REFLEX CONNECT users seamlessly extract results from the XRF including QA/QC data.



## **REMOTE ACCESS VIA REFLEX HUB**

Geologists can access their aggregated data and monitor the progress of the analytical program from any location globally. REFLEX HUB can be accessed simply through any web browser, whether on site, in the office or travelling. REFLEX HUB ensures all users have access to a "single point of truth".

## REFLEX XRF SPECIFICATIONS

Weight	1.5kg (without battery)
Dimensions	260 x 240 x 90 mm
Excitation source	4W Rh, Ag, Au or Ta anode (per application) 40 or 50 keV X-ray tube
Detector	Silicon drift detector
Environmental temperature range	-10°C to 50°C (14°F to 122°F)
Analytical range	Geochem and Soil mode from Mg to U
Processing electronics	530MHz CPU with integrated FPU with 128 MB RAM; Proprietary Count Digital Pulse Processor (DPP), <b>high count rate, reduced analysis time</b>
Smart electronics	Accelerometer; Barometer for atmosphere pressure correction of light elements measurements
Power	Rechargeable Li-ion batteries; Hot-swap maintains analyser power during battery change
Display	32 bit colour QVGA resolution, Blanview transmissive backlit touchscreen, 57 x 73mm (2.25 x 2.9 in)
Data storage	1 GB microSD (stores ~ 75 000 readings)
Data transfer	USB, Bluetooth

## STANDARD ACCESSORIES

- Waterproof carrying case
- Two Li-ion batteries
- Electronic User Manual and User Interface guide
- Hard copy Quick Start Guide
- Docking station
- Mini USB cable
- 316 Stainless Steel calibration check reference coin
- Ten spare windows
- Integrated wrist strap
- **REFLEX CONNECT XRF Software**

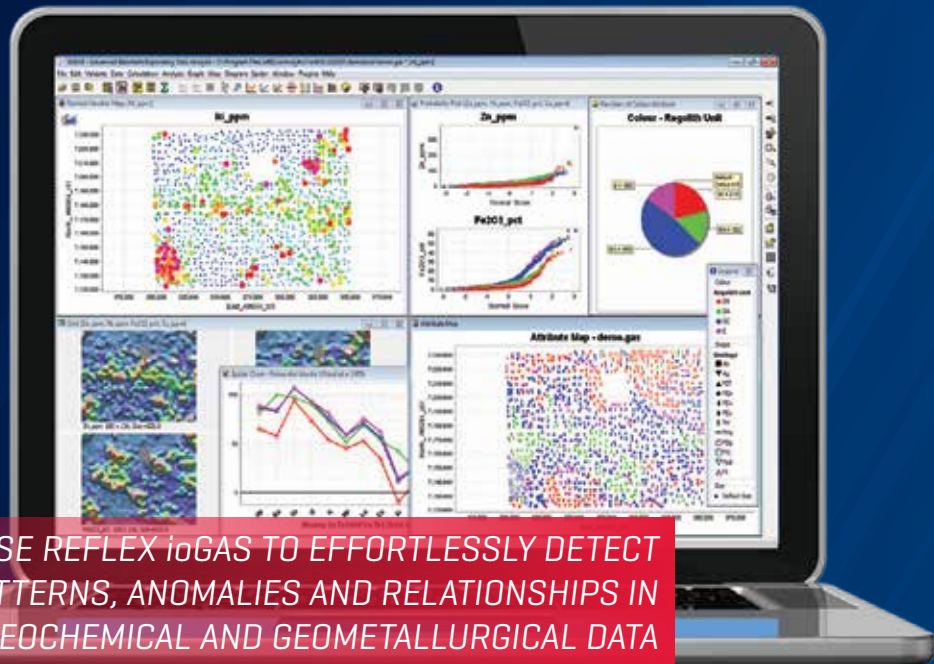
## REFLEX ACCESSORY KIT BOX

- Analyser stand
- Soil foot and pole
- Standard reference materials and kits
- Tough book
- Mortar and pestle





# REFLEX ioGAS: DATA ANALYSIS SOFTWARE

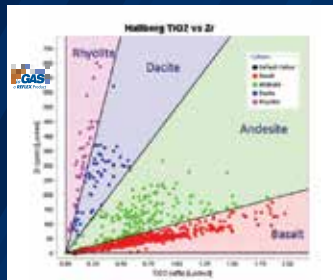


USE REFLEX ioGAS TO EFFORTLESSLY DETECT PATTERNS, ANOMALIES AND RELATIONSHIPS IN YOUR GEOCHEMICAL AND GEOMETALLURGICAL DATA



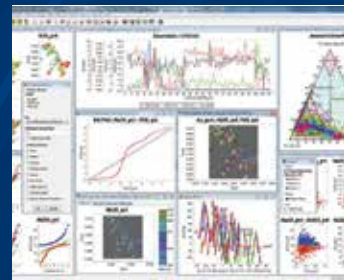
## INBUILT KNOWLEDGE

Knowledge from REFLEX ioGAS experts is captured to deliver optimised workflows and easy-to-use tools that incorporate industry best practice in interpretive techniques.



## STREAMLINE DATA

Import data from a variety of source formats including Excel, Text, CSV, REFLEX HUB, ODBC connection and selected field portable XRF units.



## REAL TIME DATA CAPTURE

Interact with data in real time using the REFLEX ioGAS dynamic graphical environment to get to the right targets and facilitate timely decision making.

## REFLEX ioGAS: DATA ANALYSIS SOFTWARE

### ADVANCED DATA HANDLING

- Streamlined data import (Excel, Text, CSV, REFLEX HUB, ALS Webtrieve, ODBC connection)
- Field portable XRF data import utility
- Data validation tools
- Automatic unit, oxide and molar conversions
- Missing data patterns
- Append new data

### DYNAMIC GRAPHICAL ENVIRONMENT

- Univariate statistics, histograms, probability plots, box plots
- Scatter plots, 3D plots, ternary plots
- Multiple plot generation and vector file output
- Templates for preset lists of diagrams and plot windows
- Store and restore checkpoints

### MULTIVARIATE STATISTICS

- Regression analysis
- Principal components analysis
- Mahalanobis distance analysis
- Cluster analysis
- Discriminant projection analysis

### PETROLOGY

- Comprehensive rock classification diagrams
- Up-to-date alteration indices from international journals
- Display mineral and rock composition nodes
- Point density gridding
- Normalise data to selected geochemical compositions

### MAP AND SPATIAL VISUALISATION

- Subset sample point data using colour, shape and size attributes
- Gridded interpolation maps
- View spatial distribution for more than 20 elements instantaneously
- 3D XYZ plots and stacked line plots for drillhole visualisation
- REFLEX ioGAS-Leapfrog Geo live link
- REFLEX ioGAS-GOCAD live link
- Export to Google Earth, ArcGIS, MapInfo, 3D DXF

### ADVANCED APPLICATIONS

Our team of geochemists have developed unique and effective tools for quickly and accurately identifying mineral exploration targets based on the following geochemical analytical methods:

- Tukey outlier identification
- Data levelling and weighted sums
- Parallel coordinate plots
- Robust multivariate statistical analysis

### MINING GEOMETALLURGY

Use REFLEX ioGAS to measure geometallurgical parameters and incorporate them into resource models to better estimate plant throughput rates, processing costs, ore recovery and improve mine planning.

- Compile rock properties such as specific gravity, multi-element data or phase specific data (e.g. extractable copper, sulphide sulphur, silicate nickel, carbonate, organic carbon) from exploration or grade control samples
- Estimate mineral compositions, hardness, grindability, liberation and acid consumption parameters
- Map deleterious elements
- Model ore deposit geometallurgical domains

## TRAINING

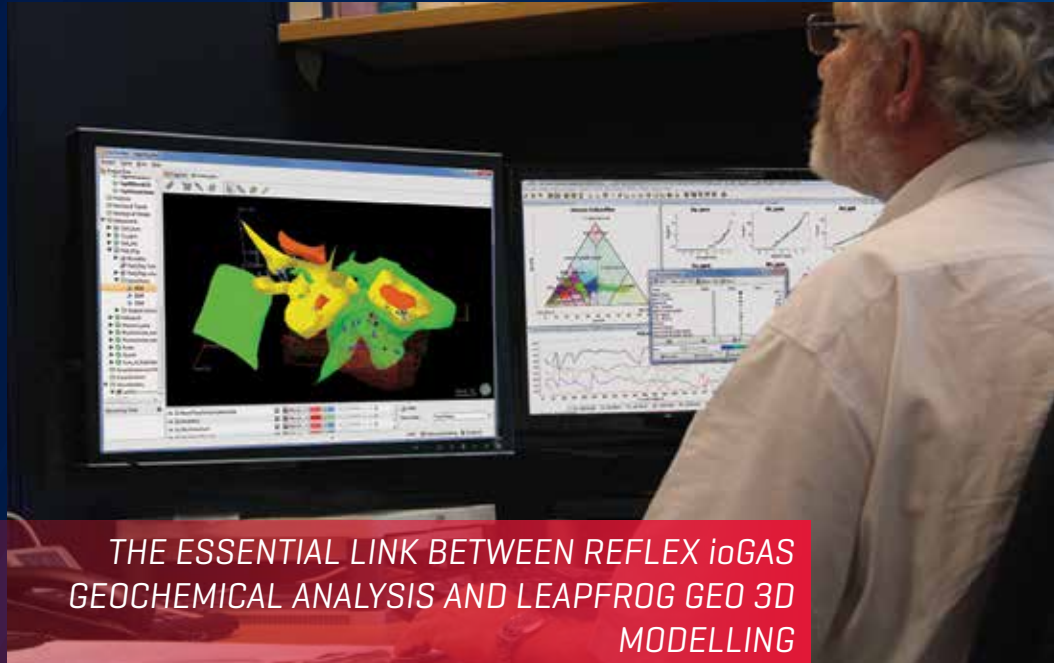
A range of training options is available including public, online and custom in-house training courses. Get up to speed with our ioGAS Fundamentals course or for the more experienced user, enhance your ioGAS knowledge with our Advanced Techniques course. See our website for course details and upcoming training dates.

REFLEX Geochemistry can also provide applied geochemistry training (including ioGAS) as part of an exploratory data analysis workflow tailored to client-specific needs. A combination of theory and case study examples from a range of topics such as pathfinder associations, primary and secondary dispersion, partial leaches, surface sampling strategies, QAQC, litho-geochemistry, geometallurgy and target identification can be undertaken and applied to your own datasets.

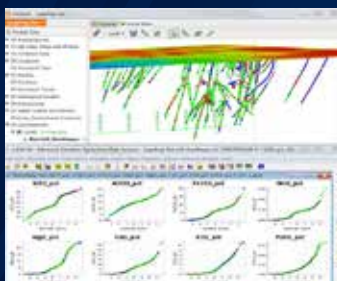
**TRIAL ioGAS SOFTWARE:** Download a free two-week trial of ioGAS from our website. 32 and 64-bit Windows & Mac versions are available.



# REFLEX ioGAS LEAPFROG GEO LIVE LINK

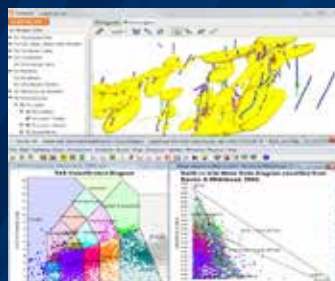


THE ESSENTIAL LINK BETWEEN REFLEX ioGAS  
GEOCHEMICAL ANALYSIS AND LEAPFROG GEO 3D  
MODELLING



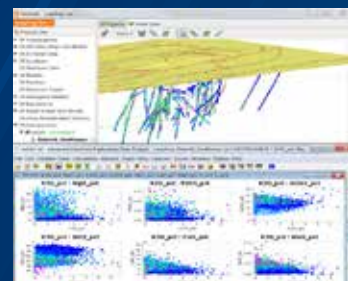
## REAL TIME VISUALISATION

The live link enables 3D drillhole assays or related data from Leapfrog Geo to be linked directly to REFLEX ioGAS allowing the user to do data validation and apply other exploratory data analysis techniques. The attributed results can be viewed instantaneously in Leapfrog Geo and used to generate interpolants to assist in the building of geological models.



## ENHANCED CAPABILITIES

Use REFLEX ioGAS to identify mineral exploration targets, map alteration zones or confirm lithological interpretations using specialised analysis and classification tools. Check geomettallurgical domains for homogeneity to better estimate plant throughput rates, processing costs, ore recovery and improve mine planning.



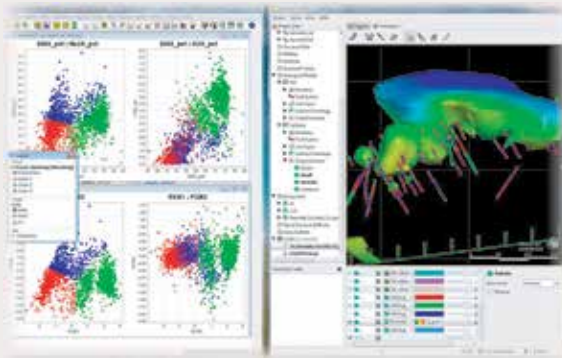
## STREAMLINE DATA

The REFLEX ioGAS – Leapfrog Geo live link simplifies the transfer of data between the two programs allowing all data, including interpreted mineralogy and alteration from ioGAS to be easily integrated into the Leapfrog Geo 3D graphical modelling environment. This streamlines the generation of multiple interpolants testing alternative hypotheses to produce more robust resource models.

## REFLEX ioGAS – LEAPFROG GEO LIVE LINK

### FEATURES

- Attribute, cluster, classify, domain and interrogate your data in ioGAS and view the results along with your other 3D spatial data in Leapfrog Geo instantaneously using the ioGAS Link.
- No importing and exporting required, simple interface.
- Rapidly create 3D interpolants from ioGAS outputs to spatially model, for example, rock type and alteration.
- Improve resource domaining by modelling element associations or mineral species and proportions.
- Preserve ioGAS outputs in the Leapfrog Geo project for later analysis.
- Quickly generate different geochemical or geometallurgical models to test alternative hypotheses.
- De-survey sample data in Leapfrog Geo and explore the located data in ioGAS.
- Attribute samples with spatial domains in Leapfrog Geo and check the domains for homogeneity or identify outliers in ioGAS.



### BENEFITS

- Access exploratory data analysis methods in ioGAS from Leapfrog Geo.
- Test alternative spatial models rapidly to reduce risk while domaining data.
- Improve rock type and alteration models.
- Better understand mineralogical variations and trace element deportment.
- Re-use material classification diagrams in ioGAS for consistent interpretations as new data becomes available.
- Generate more robust models.
- Leverage off existing software knowledge and training.
- Communicate results effectively to colleagues and management.

### HOW DO I GET IT?

The REFLEX ioGAS – Leapfrog Geo live link can only be used with active licences of Leapfrog Geo v1.3 and ioGAS v5.0 or later.

For all link purchasing and licensing enquiries please contact your local Leapfrog Geo sales team at [www.leapfrog3d.com](http://www.leapfrog3d.com)

For more information about the ioGAS software visit [www.reflexnow.com](http://www.reflexnow.com) or contact [iogas@imdexlimited.com](mailto:iogas@imdexlimited.com)

### TRAINING

Training in the use of the REFLEX ioGAS – Leapfrog Geo live link and/or customized training using your own data can be undertaken with both REFLEX Geochemistry and ARANZ Geo staff and is available upon request. See our website for course details and upcoming training dates.

REFLEX Geochemistry can also provide applied geochemistry training (including ioGAS) as part of an exploratory data analysis workflow tailored to client-specific needs. A combination of theory and case study examples from a range of topics such as pathfinder associations, primary and secondary dispersion, partial leaches, surface sampling strategies, QAQC, lithogeochemistry, geometallurgy and target identification can be undertaken and applied to your own datasets.

**TRIAL ioGAS SOFTWARE:** Download a free two-week trial of ioGAS from our website. 32 and 64-bit Windows & Mac versions are available.

# REFLEX GEOCHEMISTRY



ADD VALUE FROM GREENFIELDS TO PRODUCTION  
WITH REFLEX GEOCHEMISTRY



## THE RIGHT TEAM

*Our clients gain the benefit of not just one expert but an integrated team of professional geochemists. We provide the right skills for the job at hand and the capacity to complete multiple large projects synchronously with peer review throughout the process. Our professional approach means projects are completed in a timely and efficient manner.*



## THE RIGHT SKILLS

*Access the knowledge and skills of the largest team of applied geochemists in the world. REFLEX Geochemistry works across the value chain from greenfields exploration, through orebody development to grade and mill output optimisation. The team has expertise in a diverse range of commodities, climates and terrains.*



## THE RIGHT TOOLS

*REFLEX Geochemistry work closely with data systems business units to develop advanced tools and techniques for data handling and interpretation. This enables our geochemists to focus on turning your data into knowledge, providing you with high-quality results in the most efficient manner.*



## TARGETED SOLUTIONS FROM THE GLOBAL LEADERS IN APPLIED GEOCHEMISTRY

### GEOCHEMICAL DATA COMPILATIONS AND APPRAISALS

We can compile attributed geochemical datasets (in any format), merge and level multi-generation data and assess the quality and usefulness of historical company/government datasets, be it on a project or continental scale.

### TARGET GENERATION

Robust target generation requires integration of multiple datasets including assay data, hyperspectral data, regolith mapping, radiometrics and geology. Using industry leading exploratory data handling and analysis techniques, REFLEX Geochemistry will extract the maximum information from your data to aid in target generation, ground selection and drill-site prioritisation.

### TECHNICAL GEOCHEMICAL PROJECT MANAGEMENT

REFLEX Geochemistry can manage your geochemical programs including planning, analysis, data management, QAQC reporting, interpretation, imaging, target identification and costs. Whether you are sending your samples to a lab for assay or you are using a portable XRF unit; whether you are in Africa sampling termite mounds or India sampling village wells, REFLEX Geochemistry has the experience to maximise the effectiveness of your program.

### GEOMETALLURGY

REFLEX Geochemistry can utilise multi-element assay data to identify mineralogical controls related to key metallurgical processing parameters. REFLEX Geochemistry can also assist with phase specific assaying, where extraction of commodity elements is highly dependent on controlling mineral phases.

### QUALITY CONTROL PROGRAM DESIGN AND MONITORING

We can design and monitor QAQC programs to ensure your data are fit-for-purpose for your internal and stock exchange reporting requirements.



### TRAINING

REFLEX Geochemistry can provide applied geochemistry training (including ioGAS) as part of an exploratory data analysis workflow tailored to client-specific needs. A combination of theory and case study examples from a range of topics such as pathfinder associations, primary and secondary dispersion, partial leaches, surface sampling strategies, QAQC, lithogeochemistry, geometallurgy and target identification can be undertaken and applied to your own datasets.

A range of ioGAS training options is also available including public, online and custom in-house training courses. Get up to speed with our ioGAS Fundamentals course or for the more experienced user, enhance your ioGAS knowledge with our Advanced Techniques course. See our website for course details and upcoming training dates.

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Oil mats	1
Displacement plugs	1
Rod and casing cutter	2
chuck jaws	5
Reamer assembly	5
Inner tube clinometer	6
Cable clevis	7
Pressure relief valve	8

We manufacture and resell

MBI Drilling Products has an ongoing commitment to ensuring customer satisfaction and providing great products. That’s why we offer other products that are popular in the drilling industry. From by-pass wedges to oil mats, we select only the best products, thus making sure that our customers can find everything they need, at the moment they need it.







The oil mats are made of high quality fabric. The primary use is to recover oil (hydraulic and motor oil). Rolls come in mats of 38" X 144", 30" X 150" or in sheets of 15" X 15" and 15" X 19".

Part No	Description
Q 02 1530	Heavy Duty Oil Absorbant 30" X 150" Rolls
Q 02 1519	15" X 19" Heavy Weight Absorbent Pad (100 per pack)



## DISPLACEMENT PLUGS

They are made of rubber and designed for placing casing pack, plugging back with cement and grouting. They are available in B, N, H and P sizes.

Part No	Description
M9050026	B Displacement Plugs
M9050027	N Displacement Plugs
M9050028	H Displacement Plugs
M9050029	P Displacement Plugs

# ROD AND CASING CUTTER

Size : BW Casing

## ASSEMBLY

Description	Part No	Weight	
		lb	kg
BW Casing / N Rod Cutter Assy	CCN3000	17.50	8.0

## REPAIR KIT

CCBN3020

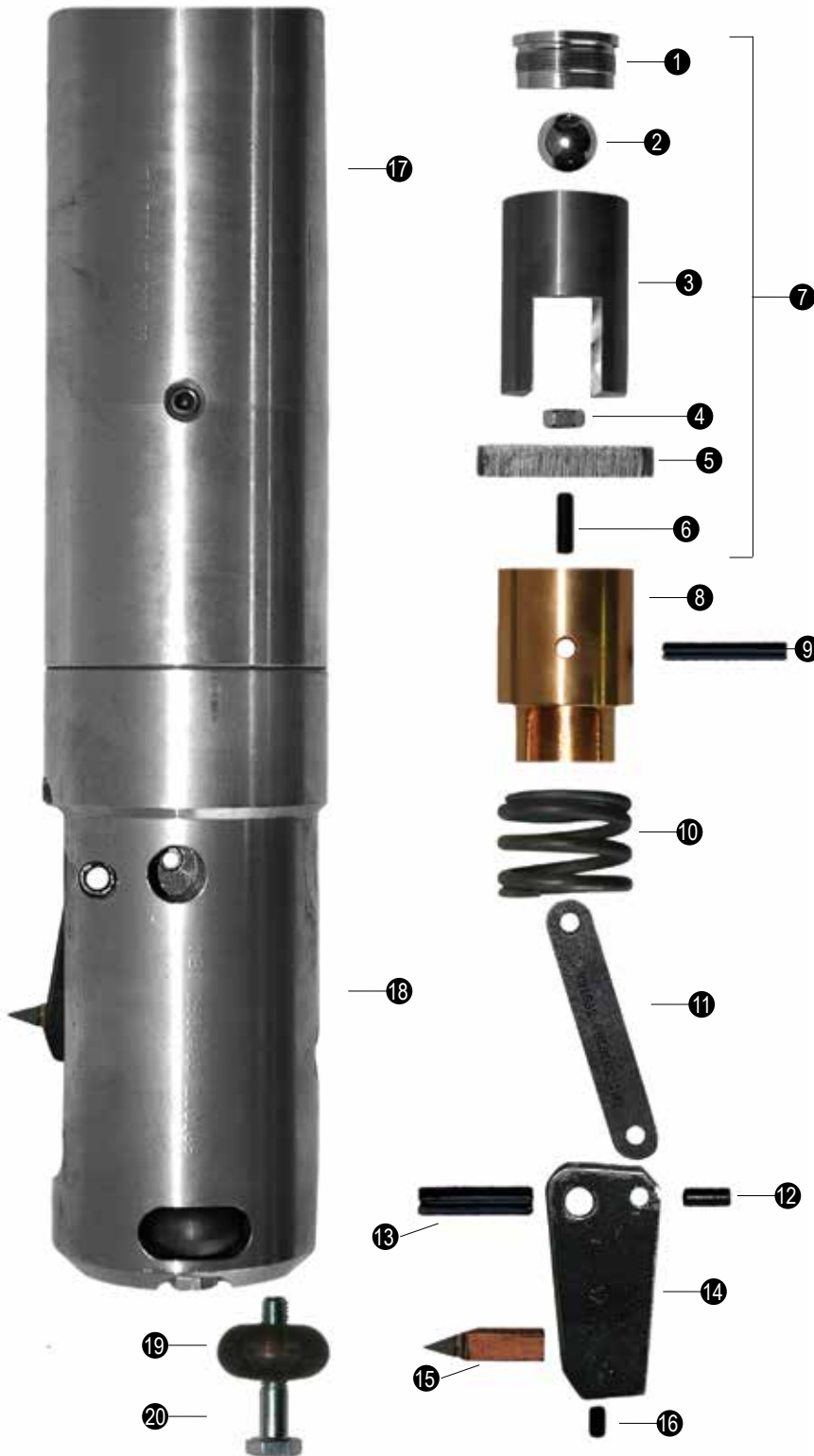
- Roller stabilizer (2)
- Screw roller (2)
- Tool holder (3/8" pin) (1)
- Tool holder (1/4" pin) (1)
- Cutter knife (1)
- Piston spring pin (1)
- Set screw tool bit (1)

1	Retaining plug	WB2123
2	Steel ball (3/4")	WB2121
3	Valve	CCBNH3014
4	Stopper lock nuts	CCBNH3017C
5	Stopper base	CCBNH3017A
6	Stopper screw	CCBNH3017B
7	"B-N-H" valve stopper assy	CCBNH3017
8	Piston	CCBNH3011
9	Piston spring pin (1/4" X 1 5/8")	CCBNH3012
10	Spring piston	CCBNH3010
11	Rod piston	CCBNH3009
12	Tool holder pin (1/4" x 5/8")	CCBNH3008
13	Tool holder (3/8" pin)	CCBNH3006
14	Holder tool bit	CCBN3004
15	Cutter knife	CCBNH3007C
16	Set screw tool bit	CCBNH3005
17	Valve body B box	CCBW3013
18	Body cutter	CCBW3003
19	Roller stabilizer (2)	CCBN3002
20	Roller screw (2)	CCBNH3001
21	Conversion Kit NTW	CCBNH3007N

## OPTION



CONVERSION KIT TO CUT THIN WALL NTW ROD:



# ROD AND CASING CUTTER

Size : NW Casing

## ASSEMBLY

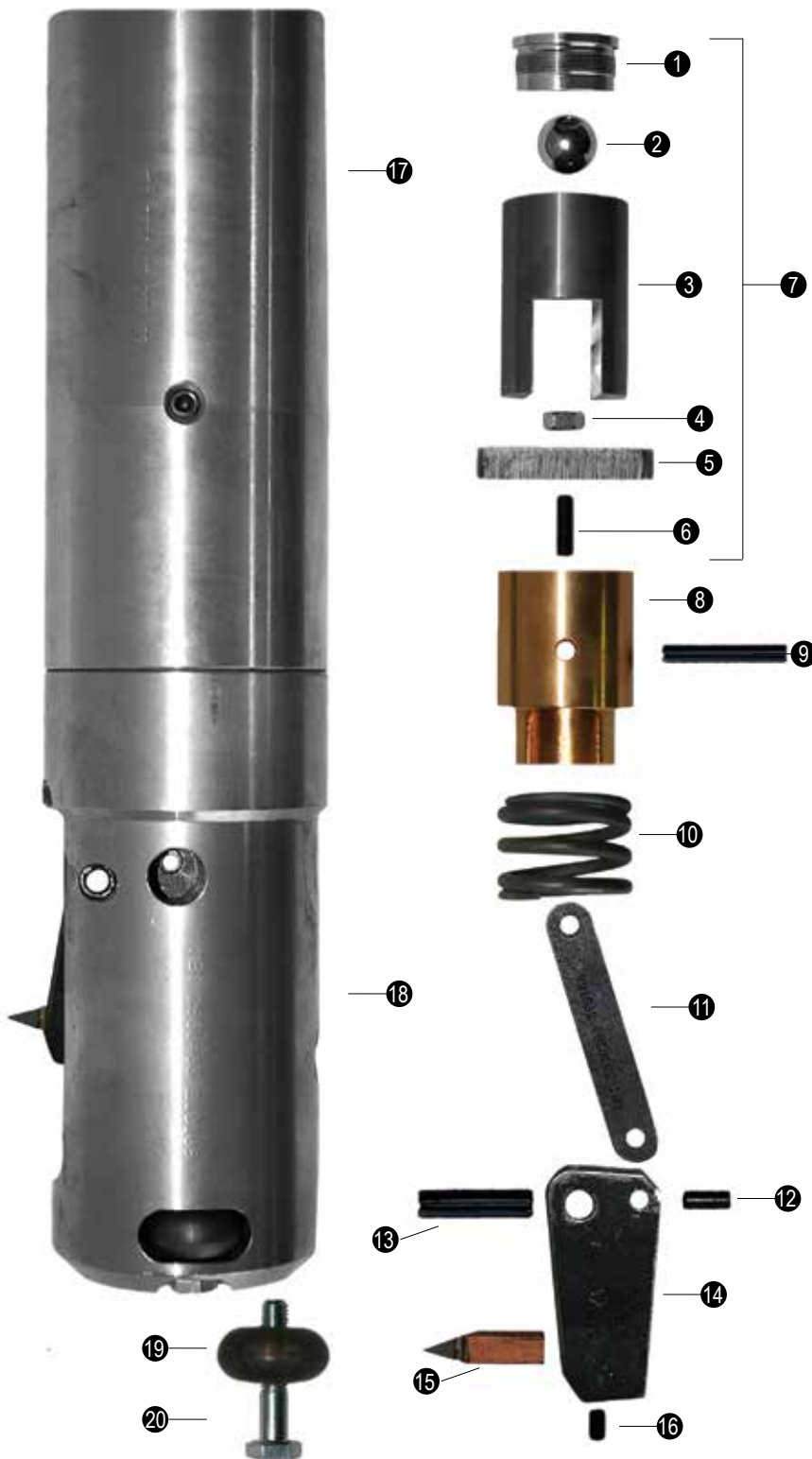
Description	Part No	Weight	
		lb	kg
NW Casing / H Rod Cutter Assy	CCH3000	25.00	11.4

## REPAIR KIT

CCBN3020

- Roller stabilizer (2)
- Screw roller (2)
- Tool holder (3/8" pin) (1)
- Tool holder (1/4" pin) (1)
- Cutter knife (1)
- Piston spring pin (1)
- Set screw tool bit (1)

1	Retaining plug	WB2123
2	Steel ball (3/4")	WB2121
3	Valve	CCBNH3014
4	Stopper lock nuts	CCBNH3017C
5	Stopper base	CCBNH3017A
6	Stopper screw	CCBNH3017B
7	"B-N-H" valve stopper assy	CCBNH3017
8	Piston	CCBNH3011
9	Piston spring pin (1/4" X 1 5/8")	CCBNH3012
10	Spring piston	CCBNH3010
11	Rod piston	CCBNH3009
12	Tool holder pin (1/4" x 5/8")	CCBNH3008
13	Tool holder (3/8" pin)	CCBNH3006
14	Holder tool bit	CCBN3004
15	Cutter knife	CCBNH3007C
16	Set screw tool bit	CCBNH3005
17	Valve body N box	CCNW3013
18	Body cutter	CCNW3003
19	Roller stabilizer (2)	CCBN3002
20	Roller screw (2)	CCBNH3001



# ROD AND CASING CUTTER

Size : HW Casing

## ASSEMBLY

Description	Part No	Weight	
		lb	kg
HW Casing / P Rod Cutter Assy	CCP3000	38.70	17.6

## REPAIR KIT

CCH3020

- Roller stabilizer (2)
- Screw roller (2)
- Tool holder (3/8" pin) (1)
- Tool holder (1/4" pin) (1)
- Cutter knife (1)
- Piston spring pin (1)
- Set screw tool bit (1)

1	Retaining plug	WB2123
2	Steel ball (3/4")	WB2121
3	Valve	CCBNH3014
4	Stopper lock nuts	CCBNH3017C
5	Stopper base	CCBNH3017A
6	Stopper screw	CCBNH3017B
7	"B-N-H" valve stopper assy	CCBNH3017
8	Piston	CCBNH3011
9	Piston spring pin (1/4" X 1 5/8")	CCBNH3012
10	Spring piston	CCBNH3010
11	Rod piston	CCBNH3009
12	Tool holder pin (1/4" x 5/8")	CCBNH3008
13	Tool holder (3/8" pin)	CCBNH3006
14	Holder tool bit	CCH3004
15	Cutter knife	CCBNH3007C
16	Set screw tool bit	CCBNH3005
17	Valve body H box	CCHW3013
18	Body cutter	CCHW3003
19	Roller stabilizer (2)	CCH3002
20	Roller screw (2)	CCBNH3001





Carbide  
replacement  
insert (1)



Description	Part No	Weight	
		lb	kg
AW Casing	U29187	4.75	2.2
BW Casing	U29189	4.27	1.9
NW Casing	U28348	3.68	1.7
BW Rod	U29186	4.75	2.2
NW Rod	U29054	4.45	2.0
HW Rod	U28348	3.68	1.7
A Rod	U28351	5.22	2.4
B Rod	U28350	4.87	2.2
N Rod	U28349	4.37	2.0
H Rod	U28348	3.68	1.7
<b>Thin Wall</b>			
ATW Rod	A3437306	5.22	2.4
BTW Rod	A3437307	4.83	2.2
NTW Rod	A3437308	4.27	1.9

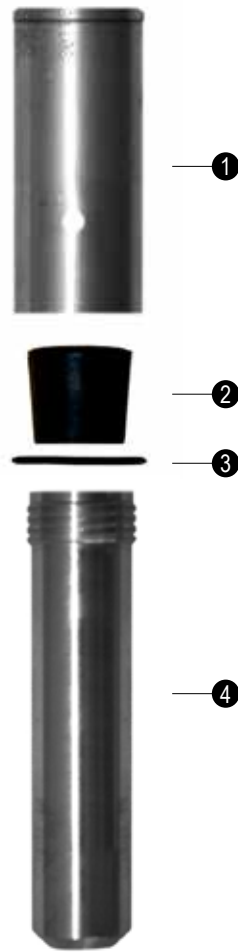
## REAMER ASSEMBLY



Description	Part No	Weight lb      kg	
<b>B Size</b>			
B rod box-box to			
BW Casing Pin	A3091313	4.18	1.9
<b>Extension</b>			
B rod pin-pin 5 5/8 (standard)	A30v96311	2.39	1.1
B rod pin-pin 3 13/16 (metric)	A3096312	1.79	0.8
<b>N Size</b>			
N rod box-box to			
NW Casing Pin	A3096413	6.28	2.9
<b>Extension</b>			
N rod pin-pin 13 3/4 (standard)	A3096411	6.56	2.9
N rod pin-pin 11 7/8 (metric)	A3096412	5.73	2.6
<b>H Size</b>			
H rod box-box to			
HW Casing Pin	A3096513	12.00	5.5
<b>Extension</b>			
H rod pin-pin 8 1/2 (standard)	A3096511	6.41	2.9
H rod pin-pin 6 5/8 (metric)	A3096512	5.33	2.4
<b>Thin Wall</b>			
<b>BTW Size</b>			
BTW rod box-box to			
BW Casing Pin	A3091315	3.54	1.6
<b>Extension</b>			
BTW rod pin-pin (standard)	A3096313	2.81	1.3
BTW rod pin-pin (metric)	A3096314	2.60	1.2
<b>NTW Size</b>			
NTW rod box-box to			
NW Casing Pin	A3091415	5.34	2.4
<b>Extension</b>			
NTW rod pin-pin (standard)	A3096414	6.78	3.0
NTW rod pin-pin (metric)	A3096415	4.39	1.9



# INNER TUBE CLINOMETER



## ASSEMBLIES

Description	Part No	Weight	
		lb	kg

### Wireline Type Assy

A IT	WEA3500	0.70	0.3
B IT	WEB3500	2.10	0.9
N IT	WEN3500	4.19	1.9
H IT	WEH3500	6.33	2.9
P IT	WEP3500	8.40	3.8

### Thin Wall Type Assy

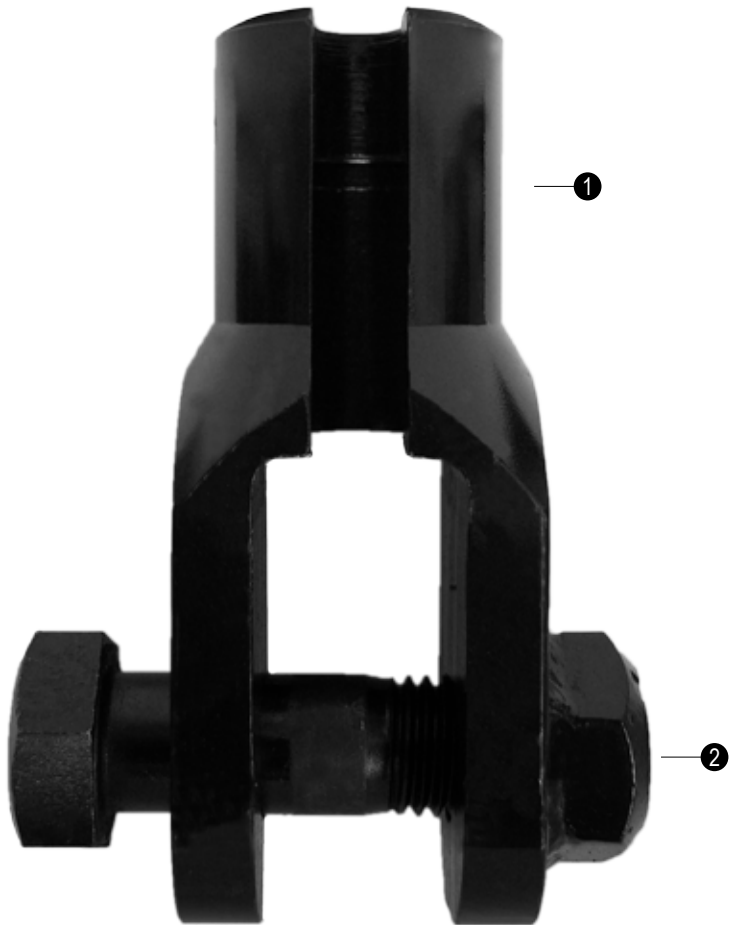
ATW IT	WEATW6500	0.82	0.4
BTW IT	WEBTW6500	2.56	1.2
NTW IT	WENTW6500	4.76	2.2

## WIRELINE INNER TUBE TYPE

1	Cap	A	WEA3501
		B	WEB3501
		N	WEN3501
		H	WEH3501
		P	WEP3501
2	Rubber stopper	A	WEB4101
		B	WEB4101
		N	WEN4100
		H	WEN4100
		P	WEN4100
3	"O" ring	A	WEA3500
		B	WEB3501
		N	WEN3502
		H	WEN3502
		P	WEN3502
4	Container	A	WEA3502
		B	WEB3502
		N	WEN3502
		H	WEN3502
		P	WEN3502

## THIN WALL INNER TUBE TYPE

1	Cap	ATW	WEATW6501
		BTW	WEBTW6501
		NTW	WENTW6501
2	Rubber stopper	ATW	WEATW4101
		BTW	WEATW4101
		NTW	WENTW4100
3	"O" ring	ATW	WEATW3500OR
		BTW	WEBTW3502OR
		NTW	WEBTW3502OR
4	Container	ATW	WEATW3502
		BTW	WEBTW3502
		NTW	WENTW3502



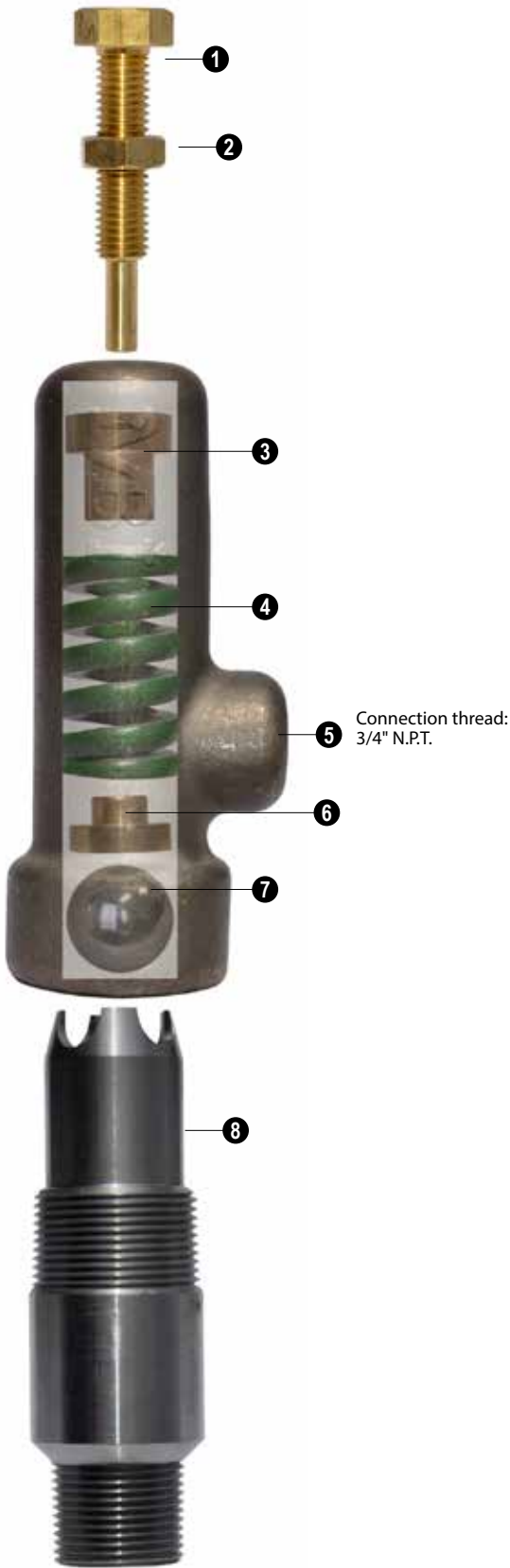
Description		Part No	Weight	
			lb	kg
Clevis Assy (5/8")		CL002	7.38	3.4
1	Body 5/8"	CL002A		
2	Pin 5/8"	CL0012		

# PRESSURE RELIEF VALVE

## ASSEMBLIES

Description	Part No	Weight	
		lb	kg
Relief Valve Assy	RV0016	7.50	3.4
Capacity: 0 - 1 500 p.s.i.			
Maximum load: 1 500 p.w.i. / 10.3 MPa			

1	Adjusting screw	RV0001
2	Lock nut	RV0002
3	Spring guide heavy duty	U000151729
4	Spring	WN2116
5	Body	RV0017
6	Ball holder heavy duty	U000151728
7	Steel bal (15/16")	RV0008
8	Special seat	RV0010





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