

MENCK MHU... HYDRAULIC HAMMER DATA SHEET- Rev. I (15/05/2007)

HAMMER TYPE: HYDRAULIC (Above & Below Water)		Menck MHU 195	Menck MHU 220	Menck MHU 600I	Menck MHU 600B	Menck MHU 800S
OPERATING DATA	Unit					
Max. Rated Energy (GRLWeap database)	kNm	191.41	215.76	588.171	619.899	800
Min. Rated Energy	kNm	65	75	200	25	80
Blow Rate at max. energy possible	bl/min	36	36	42	38	38
Weight of Ram (GRLWeap database)	kN	98.122	111.828	343.362	293.513	444.692
Maximum Stroke	m	1.951	1.929	1.713	2.112	1.799
Hammer Efficiency (Continuous mode)	%	95	95	95	95	95
Hammer Efficiency (At Restart or Full Set-up)	%	85	85	85	85	85
Company Number	Az.	764318	550552	764581	552446- 553374	Coming
WEIGHT DATA						
Helmet (GRLWeap database)	kN	19.6	40.03	97.86	97.86	145.188
Sleeve	kN	110	136	177	114.8	172.656
Underwater Ballast (UW-Ballast)	kN	55	55	206.01	98.1	255.06
Weight in Air with UW-Ballast	kN	440	440	1205	892.71	1353.78
C.o.G. measured from top of Pile	m	0.495	0.495	2.059	2.529	2.784 (Ass.)
Weight in Air without UW-Ballast	kN	386.02	386.02	997.68	794.61	1098.72
C.o.G. measured from top of Pile	m	1.055	1.055	2.250	3.4 (Ass.)	3.823
Weight in Water with UW-Ballast	kN	382.59	382.59	997.27	716.1	1128.15
C.o.G. measured from top of Pile	m	1.06	1.06	2.250	2.452	2.684
DIMENSIONAL DATA						
Sleeve Length (From Anvil up to Bottom incl. UW-Ballast)	m	3.4 (3.9)	3.4 (3.9)	3.2 (4.7)	3.596	3.825
Min. Sleeve overall dimension (without UW-Ballast)	m	~1.75	~1.75	~2.4	~3.44	~3.85
Hammer length incl. pile sleeve and UW-Ballast	m	11.9	11.9	16.4	15.6	17.1
Hammer length incl. pile sleeve and without UW-Ballast	m	11.4	11.4	15.0	15.6	17.1
HAMMER DATA vs. PILE						
Pile sleeve suitable for piles O.D. up to	in	42	42	60	72 (84")	84
Standard Anvil suitable for piles up to	in	18÷42	18÷42	36÷60	36÷72	48÷84
Max. Batter Pile	Deg	NA	NA	NA	NA	NA

Legend: NA= Not Available; GRLWeap = Driveability Software-Name; Ass.= Assumed; C.o.G.= Centre of Gravity.

MENCK MHU... HYDRAULIC HAMMER DATA SHEET- Rev. I (15/05/2007)

HAMMER TYPE: HYDRAULIC (Above & Below Water)		MENCK MHU 1000				MENCK MHU 1700	MENCK MHU 3000		
OPERATING DATA		Unit							
Max. Rated Energy (GRLWeap database)	kNm	1000				1666.8	2945.54		
Min. Rated Energy	kNm	350				600	1000		
Blow Rate at max. energy possible	bl/min	30				30	30		
Weight of Ram (GRLWeap database)	kN	565.017				922.173	1618.73		
Maximum Stroke	m	1.77				1.807	1.82		
Hammer Efficiency (Continuous mode)	%	95				95	95		
Hammer Efficiency (At Restart or Full Set-up)	%	85				85	85		
Company Number	Az.	550558		550557		550553-4/764579	550556/550555		
WEIGHT DATA									
Helmet (GRLWeap database)	kN	306.93		306.93		275.79	431.48		
Sleeve	kN	545.436		832.378		792.648	1087.93		
Underwater Ballast (UW-Ballast)	kN	167.5	393.7	167.5	393.7	551.32	735.75	1109.5	
Weight in Air with UW-Ballast	kN	2137	2363	2424	2650	3409	5258	5632	
C.o.G. measured from top of Pile	m	1.515	0.875	1.410	0.754	1.650	3.120	2.402	
Weight in Air without UW-Ballast	kN	1969.5		2256.4		2857.65	4522.41		
C.o.G. measured from top of Pile	m	2.059		1.949		3.03	4.602		
Weight in Water with UW-Ballast (Partially air-filled)	kN	1804	1980	2046 (Ass.)	2220 (Ass.)	2942.6	4606.7	4706.7	
C.o.G. measured from top of Pile	m	2.059	1.855	1.916 (Ass.)	2.079 (Ass.)	3.03	4.602	4.702	
DIMENSIONAL DATA									
Sleeve Length (From Anvil up to Bottom incl. UW-Ballast)	m	4.918 (5.326)	4.918 (5.953)	4.750 (5.158)	4.750 (5.785)	5.15 (6.51)	5.34 (7.2)	5.34 (8.52)	
Min. Sleeve overall dimension (without UW-Ballast)	m	~3.4		~3.2		~3.85	~3.85		
Hammer length incl. pile sleeve and UW-Ballast	m	16.2	16.8	16.2	16.8	20.5	25.1	26.4	
Hammer length incl. pile sleeve and without UW-Ballast	m	15.8		15.8		15.8	~23		
HAMMER DATA vs. PILE									
Pile sleeve suitable for piles O.D. up to	in	84		84		102	102		
Standard Anvil suitable for piles up to	in	60÷84		56÷84		48÷102	60÷102		
Max. Batter Pile	Deg	NA		NA		NA	NA		

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MENCK MHU... HYDRAULIC HAMMER DATA SHEET- Rev. I (15/05/2007)

HAMMER TYPE: HYDRAULIC (Above & Below Water)		MENCK MHU 200T	MENCK MHU 270T	MENCK MHU 400T	MENCK MHU 500T			MENCK MHU 600T
OPERATING DATA	Unit							
Max. Rated Energy Above Water	kNm	230	300	439.955	550			659.87
Max. Rated Energy at 1000m Water Depth	kNm	200	270	400	500			600
Min. Rated Energy	kNm	20	30	40	50			60
Blow Rate at max. energy possible	bl/min	38	40	55	38			38
Weight of Ram	kN	119.682	158.995	233.398	296.262			357.747
Maximum Stroke	m	1.849	1.887	1.885	1.874			1.845
Hammer Efficiency (Continuous mode)	%	95	95	95	95			95
Hammer Efficiency (At Restart or Full Set-up)	%	85	85	85	85			85
Company Number	Az.	To rent	To rent	To rent	To rent			621480
WEIGHT DATA					36"-72"	60"-86"	48"-86"	
Helmet	kN	67.7	67.3	97.86	107	120	120	97.86
Sleeve	kN	61.803	74.556	107.91	99	146	123	74.556
Underwater Ballast (UW-Ballast)	kN	59.841	68.67	68.67	119	100	100	168.732
Weight in Air with UW-Ballast	kN	439.488	513.063	725.94	856.4	897.6	874	974.133
C.o.G. measured from top of Pile	m	1.642	1.970	1.50	2.644	2.529	2.534	2.855
Weight in Air without UW-Ballast	kN	378.666	444.4	568.98	737.7	797.6	774	805.401
C.o.G. measured from top of Pile	m	2.0	2.520	2.60	3.426	3.333	3.344	3.14
Weight in Water with UW-Ballast (Partially air-filled)	kN	346.293	407.115	608.22	691.6	711.2	724	805.401
C.o.G. measured from top of Pile	m	1.928	1.873	1.60	2.535	2.452	2.457	3.14
DIMENSIONAL DATA								
Sleeve Length (From Anvil up to Bottom incl. UW-Ballast)	m	2.770	2.770	3.5	3.538	3.596	3.556	3.2
Min. Sleeve overall dimension (without UW-Ballast)	m	~2.4	~2.4	NA	3.17	3.43	3.84	~2.44
Hammer length incl. sleeve with and without UW-Ballast	m	11.3	12.4	14.4	15.5	15.67	15.63	15
HAMMER DATA vs. PILE								
Pile sleeve suitable for piles O.D. up to	in	62	62	60 (72")* *configuration has different weight	36"-72"	60"-86"	48"-86"	60
Standard Anvil suitable for piles up to	in	20÷62	20÷62	36÷60	36"-72"	60"-86"	48"-86"	36÷60
Max. Batter Pile	Deg	NA	NA	NA	NA			NA

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MENCK MRBS... STEAM HAMMER DATA SHEET- Rev. I (15/05/2007)

HAMMER TYPE: STEAM (Only Above Water)		MENCK MRBS1800	MENCK MRBS2500	MENCK MRBS2500S	MENCK MRBS3000	MENCK MRBS4600
OPERATING DATA	Unit					
Max. Rated Energy (GRLWeap database)	kNm	257.39	355.43	362.5 (355.43)	441.305	676.56
Min. Rated Energy (Menck Brochure)	kNm	65.239	NA	NA	111.82	171.48
Blow Rate at max. Stroke	bl/min	40	40	40	40	36
Falling Weight (GRLWeap database)	kN	171.681	284.488	284.488	294.278	451.275
Maximum Stroke (*Equivalent Stroke)	m	1.5	1.25	1.25 (1.274*)	1.5	1.5
Minimum Stroke	m	0.38	NA	NA	0.38	0.38
Hammer Efficiency (Continuous mode)	%	67	67	67	67	67
Hammer Efficiency (At Restart or Full Set-up)	%	60	60	60	60	60
Company Number	Az.	525474	710944	To rent	851754	552472/551949
WEIGHT DATA						
Helmet (GRLWeap database)	kN	100.08	111.21	152.13	154.8	265.11
Offshore Guide Cage	kN	175	NA	NA	239	NA
Weight in Air	kN	667	932	932	902	1412
C.o.G. measured from top of Pile	m	4.180	4.180	4.180	4.180	4.180
DIMENSIONAL DATA						
Guide Cage Length (From Anvil up to Bottom)	m	2.5	3.0	3.0	3.0	3.0
Min. Guide Cage overall dimension	m	~2.75	~3.5	~3.5	~3.5	~4.0
Max. Hammer length incl. Guide Cage	m	13.7	15.6	15.6	15.7	17.6
CUSHION DATA						
Type (Wood)	-	Bongossi	Bongossi	Bongossi	Bongossi	Bongossi
Elastic Modulus	MPa	2000	2000	2000	2000	2000
Area (Diameter = $(\text{Area} \cdot 4/\pi)^{1/2}$)	cm ²	8654	8654	8654	8654	19596
Thickness	mm	200	200	200	200	250
Restitution Coefficient	-	0.75	0.75	0.75	0.75	0.75
HAMMER DATA vs. PILE						
Pile sleeve suitable for piles O.D. up to	in	54	54	54	48 (62")	72 (84")
Standard Anvil suitable for piles up to	in	30÷54	30÷54	30÷54	30÷48 & 30÷62	42÷72 & 42÷84
Max. Batter Pile	Deg	NA	NA	NA	NA	NA

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MENCK MRBS... STEAM HAMMER DATA SHEET- Rev. I (15/05/2007)

HAMMER TYPE: STEAM (Only Above Water)		MENCK MRBS4600S	MENCK MRBS5000	MENCK MRBS5000S	MENCK MRBS8000	
OPERATING DATA	Unit					
Max. Rated Energy (GRLWeap database)	kNm	800 (676.56)	735.4	900 (735.4)	1176.66	
Min. Rated Energy (Menck Brochure)	kNm	171.48	186.4	186.4	298.24	
Blow Rate at max. Stroke	bl/min	36	40	40	36	
Falling Weight (GRLWeap database)	kN	451.275	490.523	490.523	784.846	
Maximum Stroke (*Equivalent Stroke)	m	1.5 (1.773*)	1.5	1.5 (1.835*)	1.5	
Minimum Stroke	m	0.38	0.38	0.38	0.38	
Hammer Efficiency (Continuous mode)	%	67	67	67	67	
Hammer Efficiency (At Restart or Full Set-up)	%	60	60	60	60	
Company Number	Az.	To rent	To rent	717471/551948	To rent	
WEIGHT DATA						
Helmet (GRLWeap database)	kN	265.11	294.03	294.03	415.46	
Offshore Guide Cage	kN	NA	353.16	353.16	833.85	
Weight in Air	kN	1412	1589	1589	2717	
C.o.G. measured from top of Pile	m	4.180	4.180	4.180	4.180	
DIMENSIONAL DATA						
Guide Cage Length (From Anvil up to Bottom)	m	3.0	3.0	3.0	3.0	
Min. Guide Cage overall dimension	m	~4.0	~3.9	~3.9	NA	
Max. Hammer length incl. Guide Cage	m	17.6	17.5	17.5	21.8	
CUSHION DATA						
Type (Wood)	-	Bongossi	Bongossi	Bongossi	Bongossi	
Elastic Modulus	MPa	2000	2000	2000	2000	
Area (Diameter = $(\text{Area} \cdot 4/\pi)^{1/2}$)	cm ²	19596	19596	19596	28652	
Thickness	mm	250	250	250	300	
Restitution Coefficient	-	0.75	0.75	0.75	0.75	
HAMMER DATA vs. PILE						
Pile sleeve suitable for piles O.D. up to	in	72 (84")	84	84	84	
Standard Anvil suitable for piles up to	in	42÷72 & 42÷84	42÷84	42÷84	42÷84	
Max. Batter Pile	Deg	NA	NA	NA	NA	

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DELMAG D... DIESEL HAMMER DATA SHEET- Rev. I (15/05/2007)

HAMMER TYPE: DIESEL (Only Above Water)		DELMAG D46-32	DELMAG D55	DELMAG D62-12		DELMAG D62-22
OPERATING DATA	Unit					
Max. Rated Energy (Setting 1)	kNm	165.73 (100%)	169.551(100%)	206.77	219	223.261(100%)
Partial Rated Energy (Setting 2)	kNm	137.56 (~83%)	140.73 (~83%)	171.62 (~83%)		185.31 (~83%)
Partial Rated Energy (Setting 3)	kNm	109.38 (~66%)	111.90 (~66%)	134.47 (~66%)		147.35 (~66%)
Min. Rated Energy (Setting 4)	kNm	70.85 (~43%)	84.77 (~50%)	103.385 (~50%)		107.05 (~48%)
Blow Rate at max. Energy	bl/min	53	47	50		50
Impact Weight (Piston)	kN	45.123	52.777	60.787		60.787
Maximum Stroke (GRLWeap database)	m	3.99	3.398	3.874		4.04
Hammer Efficiency (Continuous mode)	%	80	80	80		80
Hammer Efficiency (At Restart or Full Set-up)	%	70	70	70		70
Company Number	Az.	552473	750856/753493	764241	764350	To Rent
WEIGHT DATA						
Helmet (Depend on pile OD) (GRLWeap database)	N	17.35 (16"÷24") – 16.90 (24"÷36") – 25.35 (36"÷42") –39.59 (42"÷48")				
Offshore Guide Cage	kN	NA	NA	NA		NA
Weight in Air	kN	235.44	294.3	305		305
C.o.G. measured from top of Pile	m	3	3	3		3
DIMENSIONAL DATA						
Guide Cage Length (From Anvil up to Bottom)	m	2.5	1.3	~3	3.25	~3
Min. Guide Cage overall dimension (i.e. diameter)	m	~1.7	~1.7	~2.04		~2.04
Hammer length incl. pile Guide Cage	m	8	NA	9		9
CUSHION DATA						
Type (by Polypenco bv) (GRLWeap database)	-	¹⁾ Monocast MC 904P / ²⁾ Conbest-Micarta				
Elastic Modulus	MPa	1207 ¹⁾	1207 ¹⁾	1207 ¹⁾	2800 ²⁾	1207 ¹⁾
Area (O.D. = 510mm)	cm²	2041	2041	2041	2041	2041
Thickness	mm	120	120	120		120
Restitution Coefficient	-	0.92	0.92	0.92	0.80	0.92
HAMMER DATA vs. PILE						
Pile sleeve suitable for piles O.D. up to	in	36	60	50		50
Standard Anvil suitable for piles up to	in	20÷36	20÷60	20÷50		20÷50
Max. Batter Pile (hammer with extension of upper cylinder)	Deg	18.3 (45)	18.3 (45)	26.6 (45)		26.6 (45)

Legend: NA= Not Available; GRLWeap = Driveability Software-Name; Ass.= Assumed; C.o.G.= Centre of Gravity.

DELMAG D... DIESEL HAMMER DATA SHEET- Rev. I (15/05/2007)

HAMMER TYPE: DIESEL (Only Above Water)		DELMAG D80-12	DELMAG D80-23	DELMAG D100-13			
OPERATING DATA	Unit						
Max. Rated Energy (Setting 1)	kNm	258.08 (100%)	288.33 (100%)	360.40 (100%)			
Partial Rated Energy (Setting 2)	kNm	231.50 (~89.7%)	258.63 (~89.7%)	323.28 (~89.7%)			
Partial Rated Energy (Setting 3)	kNm	189.95 (~73.6%)	212.21 (~73.6%)	265.26 (~73.6%)			
Min. Rated Energy (Setting 4)	kNm	165.43 (~64.1%)	184.82 (~64.1%)	231.02 (~64.1%)			
Blow Rate at max. Energy	bl/min	37	35	35			
Weight of Ram (Impact Weight-Piston)	kN	80	80	100			
Maximum Stroke	m	3.226	3.604	3.604			
Hammer Efficiency (Continuous mode)	%	80	80	80			
Hammer Efficiency (At Restart or Full Set-up)	%	70	70	70			
Company Number	Az.	764353	276908-SA	620852	276904-SA	623597	
WEIGHT DATA							
Helmet (Depend on pile OD) (GRLWeap database)	kN	17.35 (16"÷24") – 16.90 (24"÷36") – 25.35 (36"÷42") – 39.59 (42"÷48")					
Offshore Guide Cage	kN	NA	NA	NA			
Weight in Air	kN	343 (20"÷48") / 383 (50"÷80")			363 (20"÷48" & 50"÷80")		
C.o.G. measured from top of Pile	m	3.1	3.1	3.5			
DIMENSIONAL DATA							
Guide Cage Length (From Anvil up to Bottom)	m	2.1	2.5	3.35	3.2	3.2	
Min. Guide Cage overall dimension	m	~2.8	~2.8	~2.8			
Hammer length incl. pile Guide Cage	m	NA	NA	10			
CUSHION DATA							
Type	-	Aluminium / HGW					Aluminium / HGW (Ø670 mm)
Elastic Modulus	MPa	9417	9417	9417		9417	
Area	cm²	2041	2041	2041		3524	
Thickness	mm	105	105	105		105	
Restitution Coefficient	-	0.80	0.80	0.80		0.80	
HAMMER DATA vs. PILE							
Pile sleeve suitable for piles O.D. up to	in	80					
Standard Anvil suitable for piles up to	in	(20"÷48") (50"÷80")					
Max. Pile True Batter	Deg	18.3					

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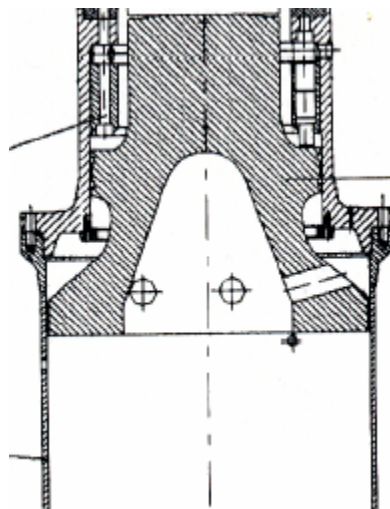
DELMAG D... DIESEL HAMMER DATA SHEET- Rev. I (15/05/2007)

HAMMER TYPE: DIESEL (Only Above Water)		DELMAG D150-42	DELMAG D200-42
OPERATING DATA	Unit		
Max. Rated Energy (Setting 1)	kNm	512.10 (100%)	682.80 (100%)
Partial Rated Energy (Setting 2)	kNm	459.35 (~89.7%)	612.47 (~89.7%)
Partial Rated Energy (Setting 3)	kNm	376.91 (~73.6%)	502.54 (~73.6%)
Min. Rated Energy (Setting 4)	kNm	328.26 (~64.1%)	437.68 (~64.1%)
Blow Rate at max. Energy	bl/min	36	36
Weight of Ram (Impact Weight-Piston)	kN	150	200
Maximum Stroke	m	3.414	3.414
Hammer Efficiency (Continuous mode)	%	80	80
Hammer Efficiency (At Restart or Full Set-up)	%	70	70
Company Number	Az.	To Rent	
WEIGHT DATA			
Helmet (Depend on pile OD) (GRLWeap database)	kN	4.4	218.27
Offshore Guide Cage	kN	16.7	519.93
Weight in Air	kN	45.7	109.5
C.o.G. measured from top of Pile	m	5.4	2.6
DIMENSIONAL DATA			
Guide Cage Length (From Anvil up to Bottom)	m	2 up to 5	1 up to 5
Min. Guide Cage overall dimension	m	2	~2.8
Hammer length incl. pile Guide Cage	m	11.03 up to 14.03	12.700 up to 16.700
CUSHION DATA			
Type	-	Aluminium / HGW	
Elastic Modulus	MPa	9417	9417
Area	cm ²	3370	7238
Thickness	mm	105	105
Restitution Coefficient	-	0.8	0.80
HAMMER DATA vs. PILE			
Pile sleeve suitable for piles O.D. up to	in	60	84
Standard Anvil suitable for piles up to	in	36/40/42/48/60	48/54/60/72/84
Max. Pile True Batter	Deg	18.3	18.3

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Pile vs. Hydraulic Hammer (Menck MHU...)																				
Menck Hammer	Suitable Pile Diameter [inch] vs. Menck Anvil (Inner dome)																			
	18	20	30	32	36	38	40	42	44	46	48	50	52	56	58	60	62	72	84	102
MHU 195	OK	OK	OK	OK	OK	OK	OK	OK	Anvil Inner Dome Diameter 345mm, Max. Allowable Wall Thickness for 18" Pile is 2.25 in.											
MHU 220	OK	OK	OK	OK	OK	OK	OK	OK	Anvil Inner Dome Diameter 345mm, Max. Allowable Wall Thickness for 18" Pile is 2.25 in.											
MHU 600T	Anvil Inner Dome Diam. 750mm, Max. All. Wall Thick. for 36" Pile is 3.25 in.				OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	-	-	-	-
MHU 800S	Anvil Inner Dome Diam. 1038mm, Max. Allowable Wall Thickness for 48" Pile is 3.5 in.										OK	OK	OK	OK	OK	OK	OK	OK	OK	-
MHU 1000	Anvil Inner Dome Diam. 1066mm, Max. Allowable Wall Thickness for 48" Pile is 3 in.										OK	OK	OK	OK	OK	OK	OK	OK	OK	-
	Anvil Inner Dome Diameter 1300mm, Max. Allowable Wall Thickness for 56" Pile is 2.375 in.													OK	OK	OK	OK	OK	OK	OK
MHU 1700	Anvil Inner Dome Diam. 1046mm, Max. Allowable Wall Thickness for 48" Pile is 3.375 in.										OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
MHU 3000	Anvil Inner Dome Diameter 1360mm, Max. Allowable Wall Thickness for 60" Pile is 3.325 in.															OK	OK	OK	OK	OK
MHU 270T	-	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	Inner Dome Diam. 420m		
MHU 400T	Anvil Inner Dome Diam. 812mm				OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	-	-	-	-
MHU 500T	Anvil Inner Dome Diam. 812mm				OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	Up to 86" Pile OD	

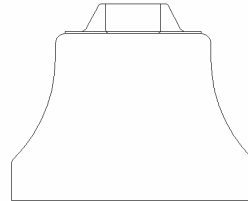
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ANVIL DOME (Menck MHU...)

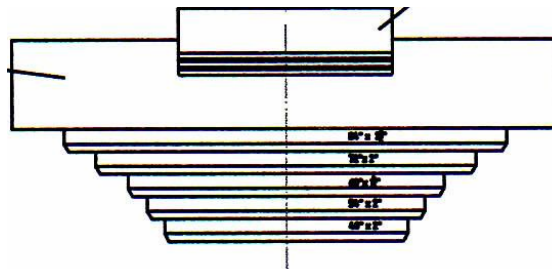
Pile vs. Diesel Hammer (Delmag D...)																	
Delmag Hammer	Suitable Pile Diameter [inch] vs. Delmag Anvil																
	20	30	32	36	38	40	42	44	46	48	50	52	54	58	60	72	84
D46-32	OK	OK	OK	OK	-	-	-	-	-	-	-	-	-	-	-	-	-
D55	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	-	-
D62-12/22	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	-	-	-	-	-	-
D80-12	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	(Sleeve 20"÷48")						
	(Sleeve 48"÷84")									OK	OK	OK	OK	OK	OK	OK	OK
D80-23	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	(Sleeve 20"÷48")						
	(Sleeve 48"÷84")									OK	OK	OK	OK	OK	OK	OK	OK
D100-13	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	(Sleeve 20"÷48")						
	(Sleeve 48"÷84")									OK	OK	OK	OK	OK	OK	OK	OK
D200-42	NA	NA	NA	NA	NA	NA	NA	NA	NA	OK	NA	NA	OK	NA	OK	OK	OK

Legend: NA = Not Available; OK= Suitable.



FLAT ANVIL (Delmag Hammer)

Pile vs. Delmag D200 Hammer Anvil																
Menck Hammer	Suitable Pile Diameter vs. Max. Allowable Pile Wall Thickness [inch x mm]															
	≤20	30	32	36	40	42	44	46	48	50	52	54	58	60	72	84
D200-42	-	-	-	-	-	-	-	-	60.6	-	-	60.8	-	51	60.9	73.3



ANVIL with STEPS (Delmag D200-42 & Menck MRBS...)

Pile vs. Steam Hammer Anvil (Menck MRBS...)																
Menck Hammer	Suitable Pile Diameter vs. Max. Allowable Pile Wall Thickness [inch x inch]															
	≤20	30	32	36	40	42	44	46	48	50	52	54	58	60	72	84
MRBS 1800	-	1	1.625	-	2.625	3.625	-	1.75	1	2	3	4	-	-	-	-
MRBS 2500/S	-	1.875	2.875	1.875	1.5	2.5	-	5	2.5	1	2	2	-	-	-	-
MRBS 3000	-	1.25	2.25	1	1.375	-	1.625	-	1.75	-	Sleeve 30"÷48"					
	-	1.75	2.75	1.75	1.25	2.25	3.25	1	2	3	-	1.9	-	1.625	2.5	Sleeve 30"÷62"
MRBS 4600	-	Sleeve 42"÷72"				2.875	3.875	-	1.875	-	1.875	2.8	1.875	2.875	5	-
	-	Sleeve 42"÷84"				1.125	2.125	3.125	4	-	1.625	2.625	1.75	2.875	2.875	2.875
MRBS 5000/S	-	-	-	-	-	1.75	-	1.375	2.375	-	1.75	2.75	4.75	5	2.375	3.25
	-	-	-	-	-	3	4	5	5	-	5	5	1.625	2.625	2.375	2.875
MRBS 8000	-	-	-	-	-	2.5	1.75	1	2	-	1.75	2.75	1.75	2.625	5	3.125

Pile vs. Steam Hammer Anvil (Menck MRBS...)																
Menck Hammer	Suitable Pile Diameter vs. Max. Allowable Pile Wall Thickness [inch x mm]															
	≤20	30	32	36	40	42	44	46	48	50	52	54	58	60	72	84
MRBS 1800	-	25.4	41.275	-	66.675	92.075	-	44.45	25.4	50.8	76.2	101.6	-	-	-	-
MRBS 2500/S	-	47.625	73.025	47.625	38.1	63.5	-	127	63.5	25.4	50.8	50.8	-	-	-	-
MRBS 3000	-	28.575	57.15	25.4	34.925	-	41.275	-	44.45	-	Sleeve 30"÷48"					
	-	44.45	69.85	44.45	31.75	57.15	82.55	25.4	50.8	76.2	-	48.26	-	41.275	63.5	Sleeve 30"÷62"
MRBS 4600	-	Sleeve 42"÷72"				73.025	98.425	-	47.625	-	47.625	73.025	47.625	73.025	127	-
	-	Sleeve 42"÷84"				28.575	53.125	79.375	101.6	-	41.275	66.675	44.45	73.025	73.025	73.025
MRBS 5000/S	-	-	-	-	-	44.45	-	34.925	60.325	-	44.45	69.85	120.65	127	60.325	82.55
	-	-	-	-	-	76.2	101.6	127	127	-	127	127	41.275	66.675	60.325	73.025
MRBS 8000	-	-	-	-	-	63.5	44.45	25.4	50.8	-	44.45	69.85	44.45	66.675	127	107.95

Typical O.D. Pile vs. Typical Heavy Plate (Pile) Wall Thickness																			
O.D. Pile	Min. WT	W.T. [mm]																	
18"	-	25.4	30	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
20"	-	25.4	30	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
24"	13	25.4	30	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
28"	-	25.4	30	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
30"	14	25.4	30	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
32"	14	25.4	30	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
36"	16	25.4	30	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
38"	-	25.4	30	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
40"	-	25.4	30	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
42"	17	25.4	30	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
44"	-	25.4	30	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
46"	-	25.4	30	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
48"	19	25.4	30	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
50"	-	25.4	30	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
52"	-	25.4	30	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
54"	-	25.4	30	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
56"	-	25.4	30	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
60"	22	25.4	30	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
72"	25	25.4	30	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
84"	28	-	30	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
96"	31	-	-	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
102"	-	-	-	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
108"	34	-	-	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110
120"	37	-	-	35	38.1	40	45	50	50.8	55	60	63.5	65	70	75	80	90	100	110

Note: Typical Plate Length 3m (10ft); Typical Plate width up to 2.7m. Plate-Pile Typical Fabrication: welded (SAW). Typical Steel Grade: X52 (355MPa), A36 (235MPa) & A40 (275MPa).

Typical Plate-Pile Wall Thickness (AISC)							
W.T. [in (mm)]							
1 (25.4)	1.125 (28.575)	1.25 (31.75)	1.375 (34.925)	1.5 (38.1)	1.625 (41.275)	1.75 (44.45)	1.875 (47.625)
2 (50.8)	2.125 (53.125)	2.25 (57.15)	2.375 (60.325)	2.5 (63.5)	2.625 (66.675)	2.75 (69.85)	2.875 (73.025)
3 (76.2)	3.125 (79.375)	3.25 (82.55)	3.375 (85.725)	3.5 (88.9)	3.625 (92.075)	3.75 (95.25)	3.875 (98.425)
4 (101.6)	4.25 (107.95)	4.5 (114.3)	4.75 (120.65)	Over 5	-	-	-

Note: Typical Plate Length 3m (10ft); Typical Plate width up to 2.7m. Plate-Pile Typical Fabrication: welded (SAW). Typical Steel Grade: X52 (355MPa), A36 (235MPa) & A40 (275MPa).

Pile vs. Typical True Batter														
O.D.	Batter [deg]													
18"÷120"	Min. 1*	4.76 (1:12)	5.19 (1:11.5)	5.71 (1:10)	7.13 (1:8)	6.71 (1:8.5)	8.13 (1:7)	9.46 (1:6)	9.93 (1.4:8)	10.30* (1:5.5)	11.31 (1:5)	12.52 (1:4.5)	Max. 14.04 (1:4)	18.43 (1:3)

Note * :

- Skirt and Conductor pile are generally installed in vertical position and the batter is conservatively assumed equals to 1° (included tolerances)
- For large pile inclinations (over 10°) particular measures on the hammer (Menck, Delmag) might be necessary to avoid hammer efficiency reducing (e.g. hammer stroke) and pile driveability cost increasing.

Legend: True Batter X:12 [e.g. arctg (3:12) =14.04 deg]. True Batter 1:Y [e.g. arctg (1:1) =45deg]]