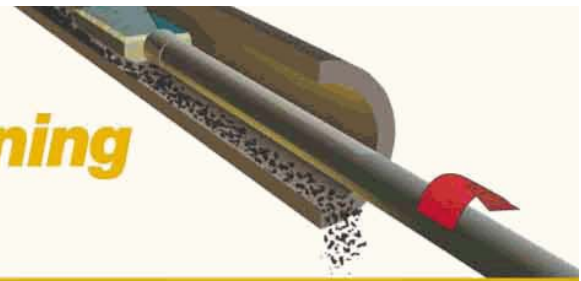


Mechanical internal cleaning (straight tubes only)



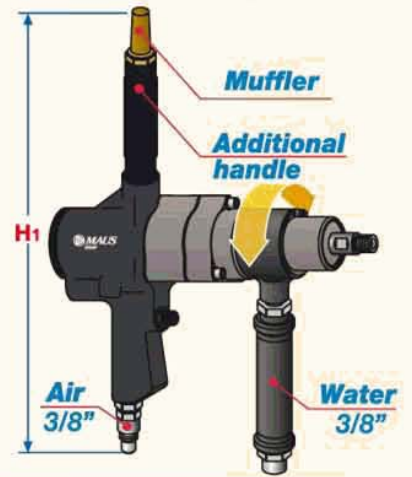
Hardscal



Simple to use
Versatility

Pneumatic shafting tube cleaners for tube bundle heat-exchangers

The pneumatic shafting tube cleaners with tool water cooling system are the simplest and most effective solution to clean the heat exchanger tubes even when completely obstructed. The continuous flow of water (max pressure 20 Bar - 290 psi) through holes in the tools provides cooling during the process and helps to drain away the material removed from the tubes.

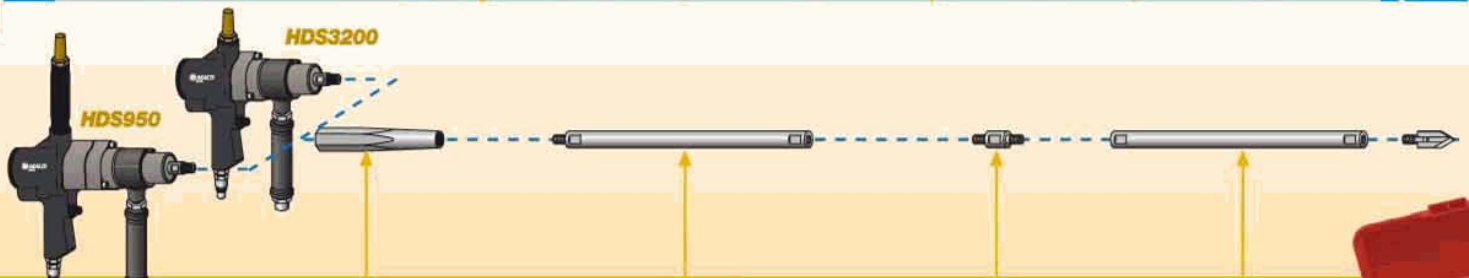


Hardscal

HDS3200

HDS950

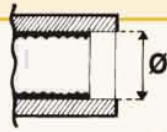
		HDS3200		HDS950	
R.p.m.		3200	3200	950	950
Tube I.D. (from÷to)	mm "	9,5÷ 25,4	3/8"÷ 1"	9,5÷44,4	3/8"÷1.3/4"
Dimensions L x D x H/H1	mm "	242 x 66 x 300/400	9.5"x 2.6"x 11.8"/15.8"	277 x 66 x 300/400	10.9"x 2.6"x 11.8"/15.8"
Weight	Kg Lb	3,5	7,8	4,5	10
Pressure	Bar Psi	6-7	90-100	6-7	90-100
Air consumption	Lt/min Cfm	840	30	840	30



mm		"		Drive coupling		Drive shaft			Shaft coupling		Driven shaft	
Model	Thread	Model	mm	Thread	Model	Thread	Model	Thread	Model	Thread		
7,39 ÷ 9,09	0.291 ÷ 0.358	MAT-337-A	5/8"NF x 1/4" NF	MCC-336	6,35	1/4 1/4" NFM x 10-32 F	MCC-334	10-32 M	MCC-335	10-32 F x 10-32 F		
9,09 ÷ 10,67	0.359 ÷ 0.420	MAT-333-A	5/8"NF x 5/16"NF	MCC-332	7,94	5/16 5/16" NFM x 1/4" NFF	MCC-330	1/4" NFM	MCC-331	1/4" NFF x 1/4" NFF		
10,67 ÷ 12,27	0.421 ÷ 0.483	MAT-321-A	5/8"NF x 3/8" NF	MCC-324	9,52	3/8 3/8" NFM x 1/4" NFF	MCC-322	1/4" NFM	MCC-323	1/4" NFF x 1/4" NFF		
12,27 ÷ 15,44	0.484 ÷ 0.608	MAT-313-A	5/8"NF x 7/16"NF	MCC-316	11,11	7/16 7/16" NFM x 5/16" NFF	MCC-314	5/16" NFM	MCC-315	5/16" NFF x 5/16" NFF		
15,44 ÷ 18,72	0.609 ÷ 0.737	MAT-309-A	5/8"NF x 1/2" NF	MCC-312	12,70	1/2 1/2" NFM x 3/8" NFF	MCC-310	3/8" NFM	MCC-311	3/8" NFF x 3/8" NFF		
18,72 ÷ 21,11	0.738 ÷ 0.831	MAT-305-A	5/8"NF x 9/16"NF	MCC-308	14,29	9/16 9/16" NFM x 3/8" NFF	MCC-306	3/8" NFM	MCC-307	3/8" NFF x 3/8" NFF		
21,11 ÷ 26,80	0.832 ÷ 1.055	MAT-301-A	5/8"NF x 5/8" NF	MCC-304	15,88	5/8 5/8" NFM x 3/8" NFF	MCC-302	3/8" NFM	MCC-303	3/8" NFF x 3/8" NFF		
26,80 ÷ 39,65	1.056 ÷ 1.561	MAT-317-A	5/8"NF x 3/4" NF	MCC-320	19,05	3/4 3/4" NFM x 7/16" NFF	MCC-318	7/16" NFM	MCC-319	7/16" NFF x 7/16" NFF		
39,65 ÷ 60,30	1.562 ÷ 2.374	MAT-325-A	5/8"NF x 1" NF	MCC-328	25,40	1 1" NFM x 7/16" NFF	MCC-326	7/16" NFM	MCC-327	7/16" NFF x 7/16" NFF		

Each single type of work requires specific equipment and tools.
Clients are invited to submit their problems to our Technical Department in order to find the right solution.

Cleaning drills and brushes



WIDIA TIPS



mm		"		mm Ø		"		mm f		"		MAT	MTW	MCB	MCT	MB
9,12 ÷ 9,88	0.359 ÷ 0.389	8,7	0.343									MAT 201	MTW 201	MCB 201	MCT 201	MB 201
9,91 ÷ 10,67	0.390 ÷ 0.420	9,5	0.375			6,35	1/4					MAT 202	MTW 202	MCB 202	MCT 202	MB 202
10,69 ÷ 11,48	0.421 ÷ 0.452	10,3	0.406									MAT 203	MTW 203	MCB 203	MCT 203	MB 203
11,48 ÷ 12,27	0.452 ÷ 0.483	11,1	0.437									MAT 204	MTW 204	MCB 204	MCT 204	MB 204
12,29 ÷ 13,06	0.484 ÷ 0.514	11,9	0.468									MAT 205	MTW 205	MCB 205	MCT 205	MB 205
13,08 ÷ 13,84	0.515 ÷ 0.545	12,7	0.500			7,93	5/16					MAT 206	MTW 206	MCB 206	MCT 206	MB 206
13,87 ÷ 14,66	0.546 ÷ 0.577	13,5	0.531									MAT 207	MTW 207	MCB 207	MCT 207	MB 207
14,68 ÷ 15,44	0.578 ÷ 0.608	14,3	0.562									MAT 208	MTW 208	MCB 208	MCT 208	MB 208
14,68 ÷ 15,44	0.578 ÷ 0.608	14,3	0.562									MAT 108	MTW 108	MCB 108	MCT 108	MB 108
15,47 ÷ 16,23	0.609 ÷ 0.639	15,1	0.593									MAT 209	MTW 209	MCB 209	MCT 209	MB 209
16,26 ÷ 17,15	0.640 ÷ 0.675	15,9	0.625									MAT 210	MTW 210	MCB 210	MCT 210	MB 210
17,17 ÷ 17,93	0.676 ÷ 0.706	16,7	0.656									MAT 211	MTW 211	MCB 211	MCT 211	MB 211
17,96 ÷ 18,72	0.707 ÷ 0.737	17,5	0.687									MAT 212	MTW 212	MCB 212	MCT 212	MB 212
18,75 ÷ 19,53	0.738 ÷ 0.769	18,2	0.718									MAT 213	MTW 213	MCB 213	MCT 213	MB 213
19,56 ÷ 20,32	0.770 ÷ 0.800	19,1	0.750									MAT 214	MTW 214	MCB 214	MCT 214	MB 214
20,35 ÷ 21,11	0.801 ÷ 0.831	19,9	0.781			9,52	3/8					MAT 215	MTW 215	MCB 215	MCT 215	MB 215
21,13 ÷ 21,89	0.832 ÷ 0.862	20,6	0.812									MAT 216	MTW 216	MCB 216	MCT 216	MB 216
21,92 ÷ 22,71	0.863 ÷ 0.894	21,4	0.843									MAT 217	MTW 217	MCB 217	MCT 217	MB 217
22,73 ÷ 23,50	0.895 ÷ 0.925	22,2	0.875									MAT 218	MTW 218	MCB 218	MCT 218	MB 218
23,52 ÷ 24,28	0.926 ÷ 0.956	23,0	0.906									MAT 219	MTW 219	MCB 219	MCT 219	MB 219
24,31 ÷ 25,07	0.957 ÷ 0.987	23,8	0.937									MAT 220	MTW 220	MCB 220	MCT 220	MB 220
25,35 ÷ 26,01	0.998 ÷ 1.024	24,6	0.968									MAT 221	MTW 221	MCB 221	MCT 221	MB 221
26,04 ÷ 26,80	1.025 ÷ 1.055	25,4	1.000									MAT 222	MTW 222	MCB 222	MCT 222	MB 222
26,82 ÷ 27,58	1.056 ÷ 1.086	26,2	1.031									MAT 223	MTW 223	MCB 223	MCT 223	MB 223
27,61 ÷ 28,37	1.087 ÷ 1.117	27,0	1.062									MAT 224	MTW 224	MCB 224	MCT 224	MB 224
28,40 ÷ 29,18	1.118 ÷ 1.149	27,8	1.093									MAT 225	MTW 225	MCB 225	MCT 225	MB 225
29,21 ÷ 29,97	1.150 ÷ 1.180	28,6	1.125									MAT 226	MTW 226	MCB 226	MCT 226	MB 226
30,00 ÷ 30,76	1.181 ÷ 1.211	29,4	1.156									MAT 227	MTW 227	MCB 227	MCT 227	MB 227
30,78 ÷ 31,55	1.212 ÷ 1.242	30,2	1.187									MAT 228	MTW 228	MCB 228	MCT 228	MB 228
31,57 ÷ 32,51	1.243 ÷ 1.280	30,9	1.218			11,11	7/16					MAT 229	MTW 229	MCB 229	MCT 229	MB 229
32,54 ÷ 33,30	1.281 ÷ 1.311	31,8	1.250									MAT 230	MTW 230	MCB 230	MCT 230	MB 230
33,32 ÷ 34,09	1.312 ÷ 1.342	32,5	1.281									MAT 231	MTW 231	MCB 231	MCT 231	MB 231
34,11 ÷ 34,90	1.343 ÷ 1.374	33,3	1.312									MAT 232	MTW 232	MCB 232	MCT 232	MB 232
34,93 ÷ 35,69	1.375 ÷ 1.405	34,1	1.343									MAT 233	MTW 233	MCB 233	MCT 233	MB 233
35,71 ÷ 36,47	1.406 ÷ 1.436	34,9	1.375									MAT 234	MTW 234	MCB 234	MCT 234	MB 234

Drills choice

Completely obstructed tubes
Partially obstructed tubes
Brushing

friable deposits

tough deposits

MAT

MCB

MTW

MCT

MB

The **HDS** machine is supplied inside its box complete with:

- 1 Air hose 1/2" mm Length = 6 m
- 1 Water hose 3/8" Length = 6 m
- 1 Muffler
- 1 Additional handle
- 1 Water handle valve
- 1 Air lubricator
- 1 Set of spare vanes
- 1 Set of service wrenches
- 1 Operating handbook

