



# ***HDS Hardscal***

Mechanical internal tubes cleaning

Maintenance

Tubes cleaner



## A winning story since 1961

### The Beginning

At the end of the 1950s, Domenico Franco Agostino became the Italian representative of Albert Otto, a German manufacturer of tube expanders. In 1961 Franco Agostino's Albert Otto Italiana was founded and in 1972, after purchasing an area of 10,000 square metres in the municipality of Bagnolo Cremasco, Maus Italia Sas was established.

### The Growth

In 1976 his son Stefano, a mechanical engineer, joined the company. Together with his father, he studied products, introduced new machinery onto the market and filed the first patents by Maus Italia. Above all, Stefano was firmly convinced that people are the very heart of a company's success. Therefore, he invested in human capital by valuing people and roles, and he surrounded himself with skilled operators as well as technical, commercial and administrative collaborators. The result was a winning, competent and proactive team.

His daughter Anna - also a mechanical engineer - has been working in the company since 2016, giving new impetus and energy to the business her father and grandfather had built.

Father and daughter work together side by side every day to guarantee the excellence of Maus Italia and support all customers worldwide with competence and passion: the company's distinctive traits.



**Stefano Agostino**  
CEO - Mechanical Engineer

**Anna Agostino**  
COO - Mechanical and Management Engineer



## ***In-house production of each component*** ***Workshop 4.0 and 24/7 production control***

The production of Maus Italia branded items is entirely carried out in Bagnolo Cremasco, in the heart of an Italian industrial area 30 km southeast of Milan.

The company boasts a 4.0 workshop equipped with state-of-the-art machinery, an in-house heat treatment room and a final inspection department that allow Maus Italia to independently manage every phase of the manufacturing process of its wide range of products whilst maintaining high quality standards.



## ***Quality first.*** ***Design and development***

One of Maus Italia's strengths is its willingness to understand its customers' needs.

Our technical department is always ready to find operational solutions to the most complex applications, even via feasibility studies. We develop accurate work processes, draw with FEM analyses to verify our mechanical-structural performance and optimise the manufacturing process of each component.

## ***Ready To Deliver***

A well-stocked and complete warehouse of finished products enables Maus Italia ship quickly to customers all over the world according to a ready-to-deliver logic.

The warehouse is fully located within our premises in Bagnolo Cremasco at controlled temperatures and conditions to guarantee the maximum safety and quality of Maus Italia products for all our customers.

## ***Quality, environment and safety policy***

**Research, quality and safety are the watchwords of Maus Italia Spa.**

Maus Italia has several projects underway aimed at increasingly sustainable development and integrates environmental concerns into its business model. The company's actions, behaviour and development choices are focused not only on the short run but rather mainly on a medium and long-term horizon.



## ***Every day in over*** ***80 country*** ***worldwide***

Find an official distributor in your country



# HDS Hardscal

*Mechanical internal cleaning with rigid shafts for heat exchanger tubes*

The pneumatic cleaners with modular rigid shafts and water cooling of the tool, are the simplest and most effective solution for cleaning double sheet heat exchanger tubes, even if they are completely obstructed.

By selecting the appropriate model of cleaning tool according to the characteristics of the residue inside the tubes, you guarantee a deep clean. The continuous flow of running water through the drainage holes in the tools, with a maximum pressure of 20 Bars ( 290 psi ), provides cooling during operation as well as providing drainage of the removed material.



## **Your first choice**



**Handy**

It weighs less than 5 kg



**Practical**

Simple to use

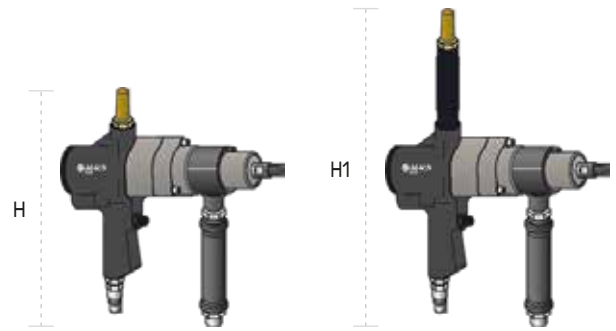


## Standard supply

- > Air hose 1/2" - Length 6m ( 19.7 fts )
- > Water hose 3/8" - Length 6m ( 19.7 fts )
- > Muffler
- > Additional handle
- > Water handle valve
- > Air lubricator
- > Set of spare vanes
- > Operating handbook



# Hardscal versions



## Hardscal

## HDS3200

## HDS950

R.p.m			3200	3200	950	950
Tube O.D. (from ÷ to)	mm	"	9,5 ÷ 25,4	3/8" - 1"	9,5 ÷ 63,5	3/8" ÷ 2.1/2"
Dimensions LxDxH/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

# Technical specifications



Drive coupling



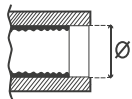
Drive shaft



Shaft coupling

Driven shaft

Drills



### Drive coupling

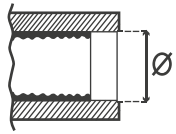
### Drive shaft

### Shaft coupling

### Driven shaft

mm	inches	Model	Thread	Model	mm	inches	Thread	Model	Thread	Model	Thread
7,39 ÷ 9,09	0.291 ÷ 0.358	<b>MAT-337-A</b>	5/8" NF x 1/4" NF	<b>MCC-336</b>	6,35	1/4	1/4" NF X 10-32 F	<b>MCC-334</b>	10-32 M	<b>MCC-335</b>	10-32 FX 10-32 F
9,09 ÷ 10,67	0.359 ÷ 0.335	<b>MAT-333-A</b>	5/8" NF x 5/16" NF	<b>MCC-332</b>	7,94	5/16	5/16" NF X 1/4" NFF	<b>MCC-330</b>	1/4" NFM	<b>MCC-331</b>	1/4" NFF X 1/4" NFF
10,67 ÷ 12,27	0.421 ÷ 0.483	<b>MAT-321-A</b>	5/8" NF x 3/8" NF	<b>MCC-324</b>	9,52	3/8	3/8" NF X 1/4" NFF	<b>MCC-322</b>	1/4" NFM	<b>MCC-323</b>	1/4" NFF X 1/4" NFF
12,27 ÷ 15,44	0.484 ÷ 0.608	<b>MAT-313-A</b>	5/8" NF x 7/16" NF	<b>MCC-316</b>	11,11	7/16	7/16" NF X 5/16" NFF	<b>MCC-314</b>	5/16" NFM	<b>MCC-315</b>	5/16" NFF X 5/16" NFF
15,44 ÷ 17,72	0.609 ÷ 0.737	<b>MAT-309-A</b>	5/8" NF x 1/2" NF	<b>MCC-312</b>	12,70	1/2	1/2" NF X 3/8" NFF	<b>MCC-310</b>	3/8" NFM	<b>MCC-311</b>	3/8" NFF X 3/8" NFF
17,72 ÷ 21,11	0.738 ÷ 0.831	<b>MAT-305-A</b>	5/8" NF x 9/16" NF	<b>MCC-308</b>	14,29	9/16	9/16" NF X 3/8" NFF	<b>MCC-306</b>	3/8" NFM	<b>MCC-306</b>	3/8" NFF X 3/8" NFF
21,11 ÷ 26,80	0.832 ÷ 1.055	<b>MAT-301-A</b>	5/8" NF x 5/8" NF	<b>MCC-304</b>	15,88	5/8	5/8" NF X 3/8" NFF	<b>MCC-302</b>	3/8" NFM	<b>MCC-303</b>	3/8" NFF X 3/8" NFF
26,80 ÷ 39,65	1.056 ÷ 1.561	<b>MAT-317-A</b>	5/8" NF x 3/4" NF	<b>MCC-320</b>	19,05	3/4	3/4" NF X 7/16" NFF	<b>MCC-318</b>	7/16" NFM	<b>MCC-319</b>	7/16" NFF X 7/16" NFF
39,65 ÷ 60,30	1.562 ÷ 2.374	<b>MAT-325-A</b>	5/8" NF x 1" NF	<b>MCC-328</b>	25,40	1	1" NF X 7/16" NFF	<b>MCC-326</b>	7/16" NFM	<b>MCC-327</b>	7/16" NFF X 7/16" NFF

# Cleaning drills and brushes



Ø Tool		Size connection		Widia tips				
mm	inches	mm	inches	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	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	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	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	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
<b>MAT</b>	<b>MCB</b>
	<b>MCT</b>
	<b>MB</b>



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