



















Assembly Machines



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Manuli Rubber Industries is a multinational group with a global organisation focused on the design, manufacture and distribution of fluid conveying rubber/metal components and systems for high pressure hydraulics and oil & marine applications.

With its 70 years of experience developing technical products, is recognized worldwide as a leader in terms of innovation, quality and performance.



Hose assembly machines presented in the catalogue are part of the Manuli product range, designed and realised according to high quality standards, assuring high performance and the safety of the operator in compliance with EC norms.

The use of the Manuli assembly machines is recommended for a proper hose assembly procedure, according to Manuli assembly instructions, considering safety aspects and requirements of high quality of the fluid connectors. The hose-fitting integration in fact is one of the most critical aspect of the hose assembly: many of the field problems are due to incorrect operations of assembly. Assembly machines are part of the intergated package offered by Manuli, are designed and optimised with the long experience of Manuli in the hydraulic sector.

Machines are tested and field validated with laboratory testing, large assembly productions and applications with standard and special products, small and large bore hoses as well.

The catalogue offers a guideline for the selection of the proper machine for the intended use; in fact a correct assembly operation is strictly connected with the machine and tooling used.

Our Sales Department and Technical Assistance Service are always available for consultancy in product selection.











Special machines non included in the present catalogue are available upon request, so as the original spare parts.

www.manuli-hydraulics.com



Model	Machine type	Application sector	Indicative capacity	Machine performance
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SWAGING MACHINES

MHP 80	hand pump, portable	ON-SITE REPAIR	2wb: 1" max. 4ws: 1/2" max.	manual machine for small sizes
MHP 137	hand pump, portable	ON-SITE REPAIR	2wb: 1.1/4" max. 4ws: 1.1/4" max.	manual machine for small/medium sizes
MB 120 	benchtop	AFTER MARKET SERVICE	2wb: 1.1/4" max. 4ws: 1" max.	medium swaging force, small/medium sizes, limited productivity
MB 137 	benchtop	AFTER MARKET SERVICE	2wb: 1.1/4" max. 4ws: 1.1/4" max.	medium swaging force, small/medium sizes, limited productivity
MB 137S 	benchtop	AFTER MARKET SERVICE	2wb: 1.1/4" max. 4ws: 1.1/4" max.	medium swaging force, small/medium sizes, medium productivity
MB 207 	benchtop	AFTER MARKET SERVICE	2wb: 1.1/2" max. 4ws: 1.1/4" max. 6ws: 1" max.	medium swaging force, medium productivity
MB 240 	benchtop	AFTER MARKET SERVICE	2wb: 2" max. 4ws: 2" max. 6ws: 1" max.	medium swaging force, medium productivity
MB 263 	benchtop	AFTER MARKET SERVICE	2wb: 3" max. 4ws: 2" max. 6ws: 2" max.	high swaging force, medium productivity, large size OK
MB 340 	benchtop	AFTER MARKET SERVICE	2wb: 3" max. 4ws: 2" max. 6ws: 2" max.	high swaging force, medium productivity, large size OK
MV 137 	for mobile van, electric 12/24V	ON-SITE REPAIR MOBILE VAN	2wb: 1.1/4" max. 4ws: 1.1/4" max.	medium swaging force, limited productivity
MV 240	for mobile van, electric 12/24V	ON-SITE REPAIR MOBILE VAN	2wb: 2" max. 4ws: 2" max. 6ws: 1" max.	medium swaging force, limited productivity
MS 140 	stand type	ASSEMBLY PRODUCTION UNIT	2wb: 1.1/4" max. 4ws: 1.1/4" max.	medium swaging force, high productivity
MS 280	stand type	ASSEMBLY PRODUCTION UNIT	2wb: 3" max. 4ws: 2" max. 6ws: 2" max.	high swaging force, high productivity, large size OK
MS 320 	stand type	ASSEMBLY PRODUCTION UNIT	2wb: 3" max. 4ws: 3" max. 6ws: 3" max.	high swaging force, high productivity, large size OK
MS 400	stand type	ASSEMBLY PRODUCTION UNIT	2wb: 3" max. 4ws: 2" max. 6ws: 2" max.	very high swaging force, high productivity, very large opening


CUTTING MACHINES

M22 CUT	benchtop	AFTER MARKET SERVICE	2wb: 1.1/4" max. 4ws: 1" max.	medium size capacity
M30 CUT	benchtop	AFTER MARKET SERVICE	2wb: 2" max. 4ws: 2" max. 6ws: 1.1/4" max.	wide hose range capacity
M75 CUT	stand type	PRODUCTION UNIT	2wb: 3" max. 4ws: 2" max. 6ws: 2" max.	whole hose range capacity
M90 CUT	stand type	PRODUCTION UNIT	2wb: 3" max. 4ws: 3" max. 6ws: 3" max.	whole hose range capacity

SKIVING MACHINES

M50 SKY 	stand type	PRODUCTION UNIT	2wb: 2" max. 4ws: 2" max.	whole hose range capacity
M100 Multisky 	stand type	PRODUCTION UNIT	2wb: 2" max. 4ws: 2" max. 6ws: 2" max.	whole hose range capacity
M205 SKY	stand type	PRODUCTION UNIT	2wb: 2" max. 4ws: 2" max. 6ws: 3" max.	whole hose range capacity

INSERT PUSHING MACHINES

M350 INS 	benchtop	SMALL PRODUCTION UNIT	from 1/2" to 1.1/4"	medium size capacity
M1500 INS	benchtop	PRODUCTION UNIT	from 1/4" to 2"	whole hose range capacity











PRESSURE TEST MACHINES

MTB 1500 	benchtop	AFTER MARKET SERVICE	from 1/4" to 2"	wide hose range capacity
MTB 2500 	benchtop	AFTER MARKET SERVICE	from 1/4" to 2"	wide hose range capacity

MACHINES TECHNICAL SPECIFICATIONS

Model	Indicative capacity	Theoretical crimp force (t)	Number of swaging per hour	Max swaging dia. (mm)	Die stroke	Max die length (mm)	N° std. kit of die sets	Std. motor	Voltage options	Weight (kg)	Dimensions LxWxH (mm)
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SWAGING MACHINES

MHP 80	2wb: 1" max. 4ws: 1/2" max.	80	n/a	43	+ 20	56	-	n/a	n/a	28	330 250 400
MHP 137	2wb: 1.1/4" max. 4ws: 1.1/4" max.	137	n/a	56	+ 18	70	6	n/a	n/a	55	480 250 340
MB 120 	2wb: 1.1/4" max. 4ws: 1" max.	120	450	56	+ 18	60	6	2.2 kW	220V 3ph, 220V 1ph	95	605 600 650
MB 137 	2wb: 1.1/4" max. 4ws: 1.1/4" max.	137	450	56	+ 28	75	10	2.2 kW	220V 3ph, 220V 1ph, 12/24V	100	605 600 650
MB 137S 	2wb: 1.1/4" max. 4ws: 1.1/4" max.	137	850	56	+ 28	75	10	3.0 kW	220V 3ph, 220V 1ph, 12/24V3.0	130	1130 670 1200
MB 207 	2wb: 1.1/2" max. 4ws: 1.1/4" max. 6ws: 1" max.	207	625	63	+ 38	100	10	3.0 kW	220V 3ph, 220V 1ph, 12/24V	190	1130 670 1200
MB 240 	2wb: 2" max. 4ws: 2" max. 6ws: 1" max.	240	625	76	+ 38	100	12	4.0 kW	220V 3ph, 220V 1ph, 12/24V	190	1130 670 1200
MB 263 	2wb: 3" max. 4ws: 2" max. 6ws: 2" max.	263	850	130	+ 52	125	13	5.5 kW	220V 3ph, 220V 1ph	280	1130 670 1200
MB 340 	2wb: 3" max. 4ws: 2" max. 6ws: 2" max.	340	850	130	+ 38	125	13	5.5 kW	220V 3ph, 220V 1ph	280	1130 670 1200
MV 137 	2wb: 1.1/4" max. 4ws: 1.1/4" max.	137	1370	56	+ 28	75	10	2.0 kW	24V dc	75	480 370 450
MV 240	2wb: 2" max. 4ws: 2" max. 6ws: 1" max.	240	n/a	76	+ 38	100	12	2.0 kW	24V dc	125	500 450 580
MS 140 	2wb: 1.1/4" max. 4ws: 1.1/4" max.	140	2100	56	+ 45	80	10	5.5 kW	220V 3ph	675	890 810 1390
MS 280	2wb: 3" max. 4ws: 2" max. 6ws: 2" max.	280	1850	130	+ 70	100	13	5.5 kW	220V 3ph	1300	1060 865 1500
MS 320 	2wb: 3" max. 4ws: 3" max. 6ws: 3" max.	320	1600	130	+ 80	100	13	5.5 kW	220V 3ph	1330	1060 865 1500
MS 400	2wb: 3" max. 4ws: 2" max. 6ws: 2" max.	400	1400	160	+ 85	125	13	5.5 kW	220V 3ph	2000	1260 930 1690

CUTTING MACHINES

		Rotation speed (rpm)	Blade diam. (mm)	Motor	Voltage options	Weight (kg)	Dimensions LxWxH (mm)
M22 CUT	2wb: 1.1/4" max. 4ws: 1" max.	3000	300	2.2 kW	220V 3ph	36	500 520 650
M30 CUT	2wb: 2" max. 4ws: 2" max. 6ws: 1.1/4" max.	3000	300	3.0 kW	220V 3ph	57	650 420 700
M75 CUT	2wb: 3" max. 4ws: 2" max. 6ws: 2" max.	3000	520	7.5 kW	220V 3ph	215	910 820 1280
M90 CUT	2wb: 3" max. 4ws: 3" max. 6ws: 3" max.	3000	520	9.0 kW	220V 3ph	260	1000 1060 1350



SKIVING MACHINES

		Rotation speed (rpm)	Motor	Voltage options	Weight (kg)	Dimensions LxWxH (mm)
M50 SKY 	2wb: 2" max. 4ws: 2" max.	50	0.25 kW	220V 3ph	45	500 600 360
M100 Multisky 	2wb: 2" max. 4ws: 2" max. 6ws: 2" max.	100	0.25 kW	220V 3ph	110	800 720 1040
M205 SKY	2wb: 2" max. 4ws: 2" max. 6ws: 3" max.	205	0.75 kW	220V 3ph	130	1130 580 550

INSERT PUSHING MACHINES

		Push force on the fitting (daN)	Max hose OD (mm)	Feeding compressed air	Weight (kg)	Dimensions LxWxH (mm)
M350 INS 	from 1/2" to 1.1/4"	350	60	7 bar	32	795 485 240
M1500 INS	from 1/4" to 2"	1500	73	7 bar	70	750 660 300

PRESSURE TEST MACHINES

		Max test pressure	Feeding compressed air	Weight (kg)	Dimensions LxWxH (mm)
MTB 1500 	from 1/4" to 2"	1500 bar	Max. 8 bar	175	2500 800 1050
MTB 2500 	from 1/4" to 2"	2500 bar	Max. 8 bar	175	2500 800 1050

New!

The catalogue

is available on

www.manuli-hydraulics.com

and on the specific
"assembly machines"

publication

HP 80

MANUAL SWAGING



DIE SIZES			TECHNICAL SPECIFICATIONS		
N.	Swaging range	L (mm)	Swaging range	mm	12 - 43
12	12.0-15.0	56	Die stroke	mm	+ 20
15	15.0-18.0	56	Master die shoe length	mm	56
18	18.0-21.0	56	Hand pump	bar	350 (double speed)
21	21.0-24.0	56	Swaging force	kN	800
24	24.0-27.0	56	Dimensions:		
27	27.0-30.0	56	Length	mm	330
30	30.0-39.0	56	Width	mm	250
39*	39.0-43.0	56	Height	mm	400
			Weight (with oil)	kg	28

* master die size

MAIN APPLICATIONS

Portable unit, hand pump machine, dedicated to on-site repairs: small repair shops for hydraulics and agriculture machines, hardware stores, general resellers.

It is a second machine for maintenance specialists to carry out on site repairs.



KEY PERFORMANCE

Compact ▪ **Light** ▪ **Balanced and easy handling** ▪ **Protection of the cylinder with pads between the master dies** ▪ **350 bar technology: more robust than 700 bar** ▪ **Dual stage pump** ▪ **Recommended for on site repair** ▪ **No standard die kit: all dies sold individually** ▪

APPLICABLE PRODUCT RANGE

HOSE TYPE	FITTING TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	MF2000 Multifit, MF3000 OPB & OPNS	1"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	MF2000 Multifit, MF3000 OPB & OPNS	1/2"	Goldenspir/12 & /4SP, Rockmaster/12 & /4SP, Shieldmaster spiral (6000 DN 10 & 12)
	MF2000 InterLock, Xtralock	Not applicable	
6 wire spirals	MF3000 OPS	Not applicable	-
	MF2000 InterLock, Xtralock		

WARNING: Possible limitations in case of double elbow assembly.

PORTABLES

HP 137

MANUAL SWAGING



DIE SIZES			TECHNICAL SPECIFICATIONS		
N.	Swaging range	L (mm)	Swaging range	mm	4 - 56
12	12.0-15.0	56	Die stroke	mm	+ 18
15	15.0-18.0	56	Master die shoe length	mm	60
18	18.0-21.0	56	Hand pump	bar	350 (double speed)
21	21.0-24.0	56	Swaging force	kN	1370
24	24.0-27.0	56	Dimensions:		
27	27.0-30.0	56	Length	mm	480
30	30.0-33.0	56	Width	mm	250
33	33.0-36.0	70	Height	mm	340
36	36.0-39.0	70	Weight (with oil)	kg	55
39	39.0-45.0	70			
45	45.0-51.0	70			
51	51.0-56.0	70			

MAIN APPLICATIONS

Portable unit, hand pump machine for small and medium size hoses, dedicated to small repair shops for hydraulics and agriculture machines, hardware stores, general resellers.

It is a second machine for maintenance specialists to carry out on site repairs.



KEY PERFORMANCE

Compact ▪ High swaging force for manual machine ▪ Short head ▪ Protection of the micrometer and of the cylinder ▪ 350 bar technology: more robust than 700 bar ▪ Dual stage pump ▪ Visual/sound signal when crimp size is reached ▪

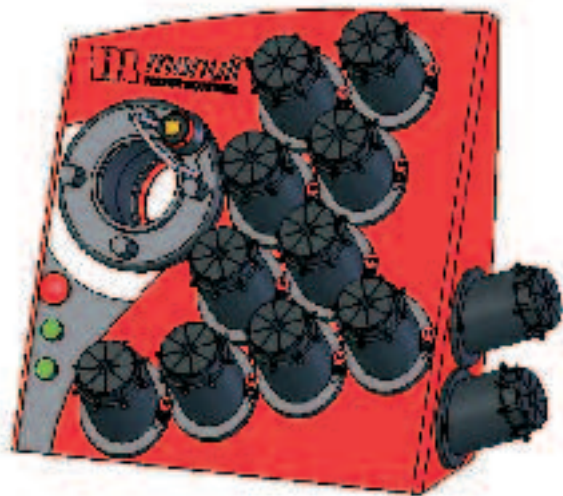
APPLICABLE PRODUCT RANGE

HOSE TYPE	FITTING TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	MF2000 Multifit, MF3000 OPB & OPNS	1.1/4" with extra dies 45/51	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	MF2000 Multifit, MF3000 OPB & OPNS	1.1/4" with extra dies 45/51	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex
	MF2000 InterLock, Xtralock	3/4"	
6 wire spirals	MF3000 OPS	Not applicable	-
	MF2000 InterLock, Xtralock		

WARNING: Possible limitations in case of double elbow assembly.

MB 120

WORKSHOP SWAGING



DIE SIZES			TECHNICAL SPECIFICATIONS		
N.	Swaging range	L (mm)	Swaging range	mm	4 - 56
12	12.0-15.0	56	Die stroke	mm	+ 18
15	15.0-18.0	56	Master die shoe length	mm	60
18	18.0-21.0	56	Motor	kW	2.2
21	21.0-24.0	56	Standard voltage	V	400+neutral
24	24.0-27.0	56	Optional voltages		220V 3ph 220V 1ph
27	27.0-30.0	56	Swaging force	kN	1200
30	30.0-33.0	56	Number of swaging/hour		450
33	33.0-36.0	70	Noise level	dB A	72
36	36.0-39.0	70	Protection class		IP 55
39	39.0-45.0	70	Dimensions:		
45	45.0-48.0	70	Length	mm	600
51	51.0-56.0	70	Width	mm	400
			Height	mm	490
			Weight (with oil)	kg	85

MAIN APPLICATIONS

It is a low cost professional machine for small-medium size hose range - It is dedicated to small maintenance repair shops, agriculture machines repair shops, maintenance departments of dealers and companies using fleets of hydraulic machinery - It is also the first level for hydraulic maintenance specialists, where productivity is not requested.



KEY PERFORMANCE

Compact ▪ **Short head** ▪ **Protection of the micrometer and of the cylinder** ▪ **Integrated die storage** ▪ **Low weight** ▪

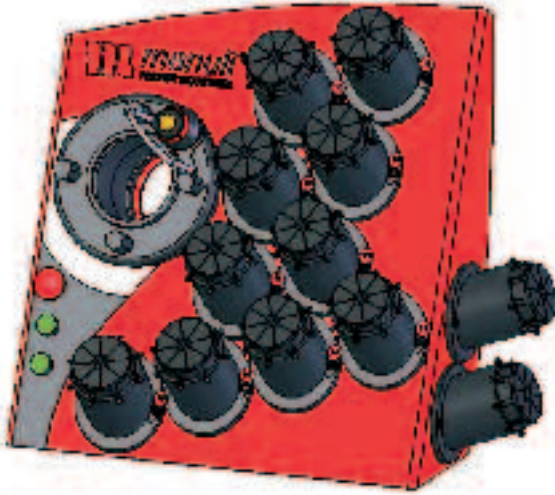
APPLICABLE PRODUCT RANGE

HOSE TYPE	FITTING TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile* <small>* with extra dies 45 or 51</small>	MF2000 Multifit, MF3000 OPB & OPNS	1.1/4"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	MF2000 Multifit, MF3000 OPB & OPNS	1"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex
	MF2000 InterLock, Xtralock	3/4"	
6 wire spirals	MF3000 OPS	Not applicable	-
	MF2000 InterLock, Xtralock		

WARNING: Possible limitations in case of double elbow assembly.

MB 137

WORKSHOP SWAGING



DIE SIZES			TECHNICAL SPECIFICATIONS		
N.	Swaging range	L (mm)	Swaging range	mm	4 - 56
12	12.0-15.0	56	Die stroke	mm	+ 28
15	15.0-18.0	56	Master die shoe length	mm	75
18	18.0-21.0	56	Motor	kW	2.2
21	21.0-24.0	56	Standard voltage	V	400+neutral
24	24.0-27.0	56	Optional voltages		220V 3ph 220V 1ph - 12/24V
27	27.0-30.0	56	Swaging force	kN	1370
30	30.0-33.0	56	Number of swaging/hour		450
33	33.0-36.0	75	Noise level	dB A	72
36	36.0-39.0	75	Protection class		IP 55
39	39.0-45.0	75	Dimensions:		
45	45.0-48.0	75	Length	mm	600
48	48.0-51.0	75	Width	mm	400
51	51.0-56.0	75	Height	mm	490
			Weight (with oil)	kg	90

MAIN APPLICATIONS

It is a low cost professional machine for small-medium size hose range - It is dedicated to small maintenance repair shops, agriculture machines repair shops, maintenance departments of dealers and companies using fleets of hydraulic machinery - It is also the first level for hydraulic maintenance specialists, where productivity is not requested - Mobile van application with the version 12/24V for on-site repair is also possible.

KEY PERFORMANCE

- Compact
- Short head
- Protection of the micrometer and of the cylinder
- Large opening
- Integrated die storage
- Low weight

OPTIONAL



Quick change panel **CCG**

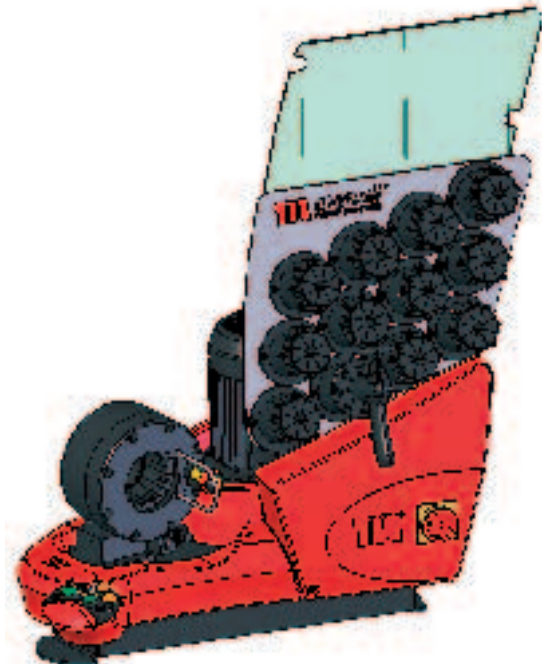
APPLICABLE PRODUCT RANGE

HOSE TYPE	FITTING TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	MF2000 Multifit, MF3000 OPB & OPNS	1.1/4"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	MF2000 Multifit, MF3000 OPB & OPNS	1.1/4"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex
	MF2000 InterLock, Xtralock	3/4"	
6 wire spirals	MF3000 OPS	Not applicable	-
	MF2000 InterLock, Xtralock		

WARNING: Possible limitations in case of double elbow assembly.

MB 137 S

WORKSHOP SWAGING



DIE SIZES			TECHNICAL SPECIFICATIONS		
N.	Swaging range	L (mm)	Swaging range	mm	4 - 56
12	12.0-15.0	56	Die stroke	mm	+ 28
15	15.0-18.0	56	Master die shoe length	mm	75
18	18.0-21.0	56	Motor	kW	3.0
21	21.0-24.0	56	Standard voltage	V	400
24	24.0-27.0	56	Optional voltages	220V 3ph 220V 1ph - 12/24V	
27	27.0-30.0	56	Swaging force	kN	1370
30	30.0-33.0	56	Number of swaging/hour	850	
33	33.0-36.0	75	Noise level	dB A	66
36	36.0-39.0	75	Protection class	IP 55	
39	39.0-45.0	75	Dimensions:		
45	45.0-48.0	75	Length	mm	1130
48	48.0-51.0	75	Width	mm	670
51	51.0-56.0	75	Height	mm	1200
			Weight (with oil)	kg	130

MAIN APPLICATIONS

It is a low cost professional machine for small-medium size hose range - It is dedicated to maintenance repair shops, agriculture machines repair shops, maintenance departments of dealers and companies using fleets of hydraulic machinery - It is also the first level for hydraulic maintenance specialists.



KEY PERFORMANCE

Very ergonomic machine ▪ Integrated Manuli swaging chart ▪ Compact ▪ Short head ▪ Protection of the micrometer and of the cylinder ▪ Large opening ▪ Easy die set up with quick change tool QCG ▪

OPTIONAL



Semi-automatic opening
SAO



Electrical foot switch
EFS



Quick change gun
QCG

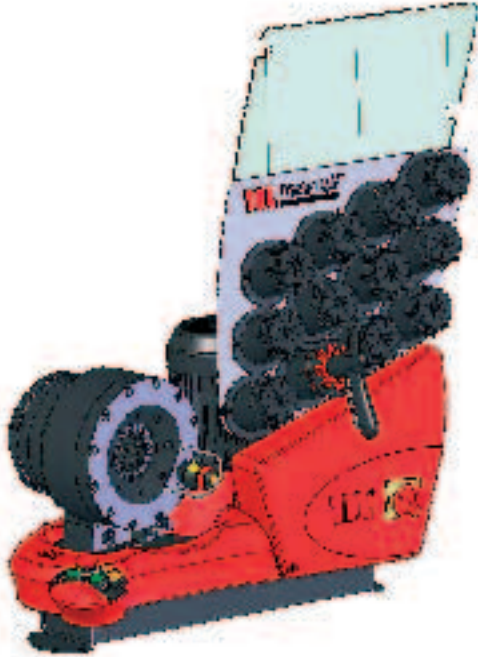
APPLICABLE PRODUCT RANGE

HOSE TYPE	FITTING TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	MF2000 Multifit, MF3000 OPB & OPNS	1.1/4"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	MF2000 Multifit, MF3000 OPB & OPNS	1.1/4"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex
	MF2000 InterLock, Xtralock	3/4"	
6 wire spirals	MF3000 OPS	Not applicable	-
	MF2000 InterLock, Xtralock		

WARNING: Possible limitations in case of double elbow assembly.

M B 207

WORKSHOP SWAGING



DIE SIZES			TECHNICAL SPECIFICATIONS		
N.	Swaging range	L (mm)	Swaging range	mm	4 - 63
12	12.0-15.0	56	Die stroke	mm	+ 38
15	15.0-18.0	56	Master die shoe length	mm	100
18	18.0-21.0	56	Motor	kW	3
21	21.0-24.0	56	Standard voltage	V	400
24	24.0-27.0	90	Optional voltages	220V 3ph	
27	27.0-30.0	90		220V 1ph - 12/24V	
30	30.0-33.0	90	Swaging force	kN	2070
33	33.0-36.0	90	Number of swaging/hour		625
36	36.0-39.0	90	Noise level	dB A	66
39	39.0-45.0	90	Protection class		IP 55
45	45.0-51.0	100	Dimensions:		
51	51.0-57.0	100	Length	mm	1130
57	57.0-66.0	100	Width	mm	670
			Height	mm	1200
			Weight (with oil)	kg	190

MAIN APPLICATIONS

Professional benchtop machine for the most common size of hoses used in hydraulics - It is dedicated to hydraulic maintenance specialists working for medium size machines and equipment, small/medium assemblers for small supplies of hose assemblies.



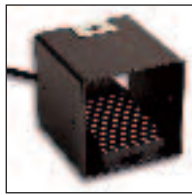
KEY PERFORMANCE

- Very ergonomic machine
- Integrated Manuli swaging chart
- Compact
- Narrow head
- Large opening
- High crimp force
- Radial movement of the dies
- Protection of the micrometer and of the cylinder
- Security by-pass in case of incorrect choice of the dies
- Easy die set up with quick change tool OCG

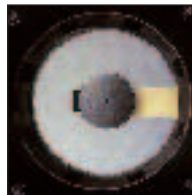
OPTIONAL



Semi-automatic opening
SAO



Electrical foot switch
EFS



Backstop:
Mechanical
MBS
Electrical
EBS



Quick change gun
OCG

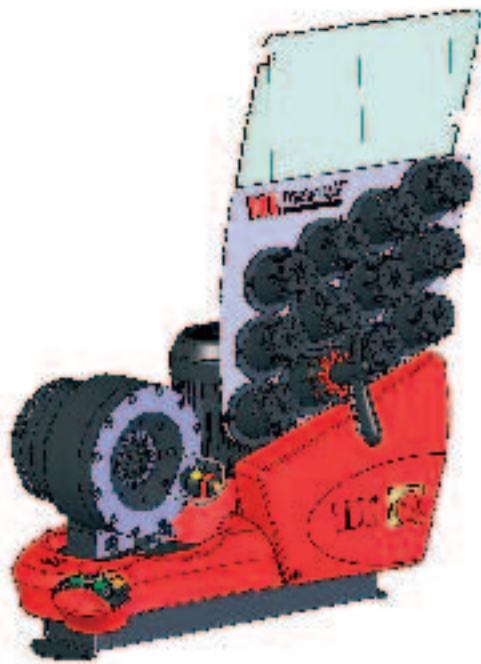
APPLICABLE PRODUCT RANGE

HOSE TYPE	FITTING TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile* <small>* with extra dies 57</small>	MF2000 Multifit, MF3000 OPB & OPNS	1.1/2"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	MF2000 Multifit, MF3000 OPB & OPNS	1.1/4"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex
	MF2000 InterLock, Xtralock	1"	
6 wire spirals	MF3000 OPS	1"	Diamondspir, Goldenblast/six
	MF2000 InterLock, Xtralock		

WARNING: Possible limitations in case of double elbow assembly.

M^B 240

WORKSHOP SWAGING



DIE SIZES			TECHNICAL SPECIFICATIONS		
N.	Swaging range	L (mm)	Swaging range	mm	4 - 76
12	12.0-15.0	56	Die stroke	mm	+ 38
15	15.0-18.0	56	Master die shoe length	mm	100
18	18.0-21.0	56	Motor	kW	4
21	21.0-24.0	56	Standard voltage	V	400
24	24.0-27.0	90	Optional voltages	220V 3ph 220V 1ph - 12/24V	
27	27.0-30.0	90	Swaging force	kN	2400
30	30.0-33.0	90	Number of swaging/hour		625
33	33.0-36.0	90	Noise level	dB A	66
36	36.0-39.0	90	Protection class		IP 55
39	39.0-45.0	90	Dimensions:		
45	45.0-51.0	100	Length	mm	1130
51	51.0-57.0	100	Width	mm	670
57	57.0-66.0	100	Height	mm	1200
66	66.0-70.0	100	Weight (with oil)	kg	190
70	70.0-76.0	100			

MAIN APPLICATIONS

Professional benchtop machine for the most common size of hoses used in hydraulics - It is dedicated to hydraulic maintenance specialists working for medium size machines and equipment, small/medium assemblers for small supplies of hose assemblies.



KEY PERFORMANCE

- Very ergonomic machine
- Integrated Manuli swaging chart
- Compact
- Narrow head
- Large opening
- High crimp force
- Radial movement of the dies
- Protection of the micrometer and of the cylinder
- Security by-pass in case of incorrect choice of the dies
- Easy die set up with quick change tool QCG

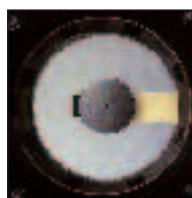
OPTIONAL



Semi-automatic opening
SAO



Electrical foot switch
EFS



Backstop:
Mechanical
MBS
Electrical
EBS



Quick change gun
QCG

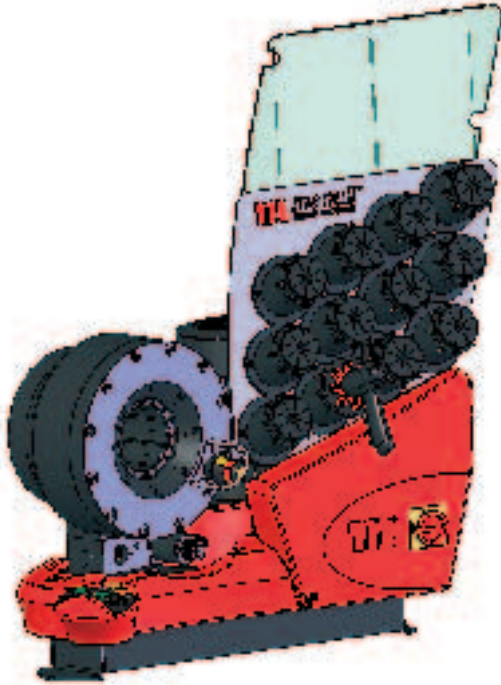
APPLICABLE PRODUCT RANGE

HOSE TYPE	FITTING TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	MF2000 Multifit, MF3000 OPB & OPNS	2"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	MF2000 Multifit, MF3000 OPB & OPNS	2"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex
	MF2000 InterLock, Xtralock	1.1/4"	
6 wire spirals	MF3000 OPS	1"	Diamondspir, Goldenblast/six
	MF2000 InterLock, Xtralock		

WARNING: Possible limitations in case of double elbow assembly.

MB 263

WORKSHOP SWAGING



DIE SIZES			TECHNICAL SPECIFICATIONS		
N.	Swaging range	L (mm)	Swaging range	mm	4 - 130
12	12.0-15.0	56	Die stroke	mm	+ 52
15	15.0-18.0	56	Master die shoe length	mm	125
18	18.0-21.0	56	Motor	kW	5.5
21	21.0-24.0	56	Standard voltage	V	400
24	24.0-27.0	90	Optional voltages	220V 3ph 220V 1ph	
27	27.0-30.0	90	Swaging force	kN	2630
30	30.0-33.0	90	Number of swaging/hour		850
33	33.0-36.0	90	Noise level	dB A	68
36	36.0-39.0	90	Protection class		IP 55
39	39.0-45.0	90	Dimensions:		
45	45.0-51.0	100	Length	mm	1130
51	51.0-57.0	110	Width	mm	670
57	57.0-66.0	110	Height	mm	1200
66	66.0-73.0	110	Weight (with oil)	kg	280
73	73.0-80.0	125			

MAIN APPLICATIONS

Professional machine for a wide range of hoses, with high swaging force even though in a simple benchtop structure. It is dedicated to hydraulic maintenance specialists willing to invest in a powerful machine for a wide hose range including large bore wire braided 2-1/2" and 3". It is also suitable for small OEMs supplies.



KEY PERFORMANCE

Very ergonomic machine ▪ Integrated Manuli swaging chart ▪ Large die stroke and wide opening without dies (180 mm) ▪ High crimp force (is suitable for R13/15 hoses) ▪ Radial movement of the dies ▪ Protection of the micrometer and of the cylinder ▪ Security by-pass in case of incorrect choice of the dies ▪ Possibility to use large dies for industrial hoses ▪ Easy die set up with quick change tool QCG ▪ MB 263 L also available with lower speed compared to MB 263 (4 kW motor - 550 swaging/hour) ▪

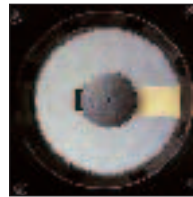
OPTIONAL



Semi-automatic opening
SAO



Electrical foot switch
EFS



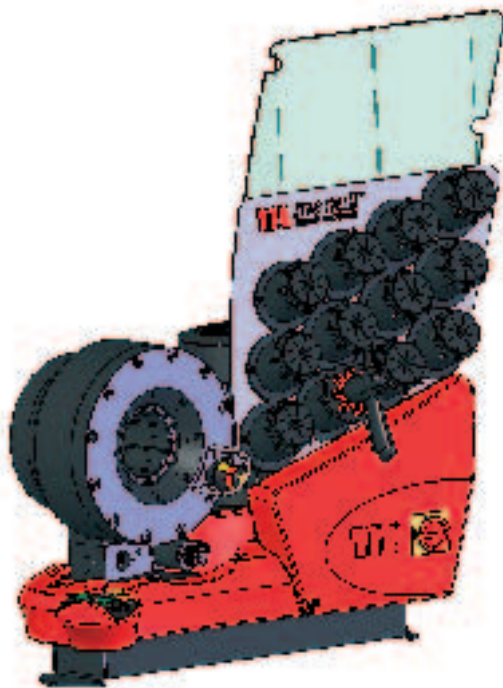
Backstop:
Mechanical
MBS
Electrical
EBS



Quick change gun
QCG

APPLICABLE PRODUCT RANGE

HOSE TYPE	FITTING TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	MF2000 Multifit, MF3000 OPB & OPNS	3"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	MF2000 Multifit, MF3000 OPB & OPNS	2"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex, Goldenblast
	MF2000 InterLock, Xtralock		
6 wire spirals	MF3000 OPS	2"	Goldenblast/six, Rockmaster/13 & 15
	MF2000 InterLock, Xtralock		



MB 340

WORKSHOP SWAGING

DIE SIZES			TECHNICAL SPECIFICATIONS		
N.	Swaging range	L (mm)	Swaging range	mm	4 - 130
12	12.0-15.0	56	Die stroke	mm	+ 38
15	15.0-18.0	56	Master die shoe length	mm	125
18	18.0-21.0	56	Motor	kW	5.5
21	21.0-24.0	56	Standard voltage	V	400
24	24.0-27.0	90	Optional voltages	220V 3ph 220V 1ph	
27	27.0-30.0	90	Swaging force	kN	3400
30	30.0-33.0	90	Number of swaging/hour		850
33	33.0-36.0	90	Noise level	dB A	68
36	36.0-39.0	90	Protection class		IP 55
39	39.0-45.0	90	Dimensions:		
45	45.0-51.0	100	Length	mm	1130
51	51.0-57.0	110	Width	mm	670
57	57.0-66.0	110	Height	mm	1200
66	66.0-73.0	110	Weight (with oil)	kg	280
73	73.0-80.0	125			

MAIN APPLICATIONS

Professional machine for a wide range of hoses, with high swaging force even though in a simple benchtop structure. It is dedicated to hydraulic maintenance specialists willing to invest in a powerful machine for a wide hose range including large bore wire braided 2-1/2" and 3". It is also suitable for small OEMs supplies.



KEY PERFORMANCE

Very ergonomic machine ▪ Integrated Manuli swaging chart ▪ Large opening ▪ Very high crimp force (is suitable for R13/15 hoses) ▪ Radial movement of the dies ▪ Protection of the micrometer and of the cylinder ▪ Security by-pass in case of incorrect choice of the dies ▪ Possibility to use large dies for industrial hoses ▪ Easy die set up with quick change tool QCG ▪ MB 340 L also available with lower speed compared to MB 340 (4 kW motor - 550 swaging/hour) ▪

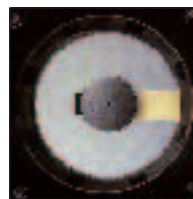
OPTIONAL



Semi-automatic opening
SAO



Electrical foot switch
EFS



Backstop:
Mechanical **MBS**
Electrical **EBS**



Quick change gun
QCG

APPLICABLE PRODUCT RANGE

HOSE TYPE	FITTING TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	MF2000 Multifit, MF3000 OPB & OPNS	3"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	MF2000 Multifit, MF3000 OPB & OPNS	2"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex, Goldenblast
	MF2000 InterLock, Xtralock		
6 wire spirals	MF3000 OPS	2"	Diamondspir up to 2", Goldenblast/six, Rockmaster/13 & 15
	MF2000 InterLock, Xtralock		

WARNING: Possible limitations in case of double elbow assembly.

M[®]V 137

ELECTRIC MOBILE SWAGING



DIE SIZES			TECHNICAL SPECIFICATIONS		
N.	Swaging range	L (mm)	Swaging range	mm	4 - 56
12	12.0-15.0	56	Die stroke	mm	+ 28
15	15.0-18.0	56	Master die shoe length	mm	75
18	18.0-21.0	56	Motor	kW	2
21	21.0-24.0	56	Standard voltage	V	12
24	24.0-27.0	56	Optional voltages	24V	
27	27.0-30.0	56	Swaging force	kN	1370
30	30.0-33.0	56	Number of swaging/hour	n/a	
33	33.0-36.0	75	Noise level	dB A	72
36	36.0-39.0	75	Protection class		IP 55
39	39.0-45.0	75	Dimensions:		
45	45.0-48.0	75	Length	mm	480
48	48.0-51.0	75	Width	mm	370
51	51.0-56.0	75	Height	mm	450
			Weight (with oil)	kg	75

The battery and the cables are not supplied with the machine.
Battery specs: DC capacity 100A - Peak supply of 450 A

MAIN APPLICATIONS

Professional machine for a wide range of hoses, with high swaging force even though in a simple benchtop structure - Designed for mobile van applications, presents low weight, it is possible as option to have a crimp head separate from the power pack - It is designed for hydraulic maintenance specialists, dedicated to on-site repairs with mobile van.

**KEY PERFORMANCE**

Compact ▪ Short head ▪ Protection of the micrometer and of the cylinder ▪ Large opening ▪ Low weight ▪

APPLICABLE PRODUCT RANGE

HOSE TYPE	FITTING TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	MF2000 Multifit, MF3000 OPB & OPNS	1.1/4"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	MF2000 Multifit, MF3000 OPB & OPNS	1.1/4"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex
	MF2000 InterLock, Xtralock	3/4"	
6 wire spirals	MF3000 OPS	Not applicable	-
	MF2000 InterLock, Xtralock		

WARNING: Possible limitations in case of double elbow assembly.

M[®]V 240

ELECTRIC MOBILE SWAGING



DIE SIZES			TECHNICAL SPECIFICATIONS		
N.	Swaging range	L (mm)	Swaging range	mm	4 - 76
12	12.0-15.0	56	Die stroke	mm	+ 38
15	15.0-18.0	56	Master die shoe length	mm	100
18	18.0-21.0	56	Motor	kW	2
21	21.0-24.0	56	Standard voltage	V	12
24	24.0-27.0	90	Optional voltages	24V	
27	27.0-30.0	90	Swaging force	kN	2400
30	30.0-33.0	90	Number of swaging/hour	n/a	
33	33.0-36.0	90	Noise level	dB A	72
36	36.0-39.0	90	Protection class	IP 55	
39	39.0-45.0	90	Dimensions:		
45	45.0-51.0	100	Length	mm	500
51	51.0-57.0	100	Width	mm	450
57	57.0-66.0	100	Height	mm	580
66	66.0-70.0	100	Weight (with oil)	kg	125
70	70.0-76.0	100			

The battery and the cables are not supplied with the machine.
Battery specs: DC capacity 100A - Peak supply of 450 A

MAIN APPLICATIONS

Professional machine for a wide range of hoses, with high swaging force even though in a simple benchtop structure - Designed for mobile van applications, presents low weight, it is possible as option to have a crimp head separate from the power pack - It is designed for hydraulic maintenance specialists, dedicated to on-site repairs with mobile van, for a wide hose range.



KEY PERFORMANCE

Compact ▪ Narrow head ▪ Large opening ▪ High crimp force ▪ Radial movement of the dies ▪ Protection of the micrometer and of the cylinder ▪ Security by-pass in case of incorrect choice of the dies ▪

APPLICABLE PRODUCT RANGE

HOSE TYPE	FITTING TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	MF2000 Multifit, MF3000 OPB & OPNS	2"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
	MF2000 InterLock, Xtralock		
4 wire spirals	MF2000 Multifit, MF3000 OPB & OPNS	2"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex, Goldenblast
	MF2000 InterLock, Xtralock	1.1/4"	
6 wire spirals	MF3000 OPS	1"	Diamondspir, Goldenblast/six
	MF2000 InterLock, Xtralock		

WARNING: Possible limitations in case of double elbow assembly.

New!

SWAGING MACHINES

STAND-TYPES



MS 140

ASSEMBLY MASS PRODUCTION

DIE SIZES			TECHNICAL SPECIFICATIONS		
N.	Swaging range	L (mm)	Swaging range	mm	4 - 56
12	12.0-15.0	56	Die stroke	mm	+ 45
15	15.0-18.0	56	Master die shoe length	mm	80
18	18.0-21.0	56	Motor	kW	5.5
21	21.0-24.0	56	Standard voltage	V	400
24	24.0-27.0	56	Optional voltages		220V 3ph
27	27.0-30.0	56	Swaging force	kN	1400
30	30.0-33.0	56	Number of swaging/hour		2100
33	33.0-36.0	75	Noise level	dB A	69
36	36.0-39.0	75	Protection class		IP 55
39	39.0-45.0	75	Standard controls		semi-automatic
45	45.0-48.0	75	Dimensions:		
48	48.0-51.0	75	Length	mm	890
51	51.0-56.0	75	Width	mm	810
			Height	mm	1390
			Weight (with oil)	kg	675

MAIN APPLICATIONS

Universal professional machine for large hose range and high production capacity. It is dedicated to professional assemblers for mass production, OEMs assembly shops, large maintenance activities.

KEY PERFORMANCE

The quickest machine of the MS series ▪ OC tool and die pods included ▪ Large production capacity ▪ Adjustable semi-automatic opening ▪ Low noise level ▪ Easy die set up with quick change tool QCG ▪ Included mirror for an easy control ▪

INCLUDED



Semi-automatic opening **SAO**



Quick change gun **QCG**

OPTIONAL



Touch screen display **TSD**



Electrical foot switch **EFS**



Backstop electrical **EBS**

APPLICABLE PRODUCT RANGE

HOSE TYPE	FITTING TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	MF2000 Multifit, MF3000 OPB & OPNS	1.1/4"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	MF2000 Multifit, MF3000 OPB & OPNS	1.1/4"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex
	MF2000 InterLock, Xtralock	1"	
6 wire spirals	MF3000 OPS	Not applicable	-
	MF2000 InterLock, Xtralock		



M'S 280

ASSEMBLY MASS PRODUCTION

DIE SIZES			TECHNICAL SPECIFICATIONS		
N.	Swaging range	L (mm)	Swaging range	mm	4 - 130
12	12.0-15.0	90	Die stroke	mm	+ 70
15	15.0-18.0	90	Master die shoe length	mm	100
18	18.0-21.0	90	Motor	kW	5.5
21	21.0-24.0	90	Standard voltage	V	400
24	24.0-27.0	90	Optional voltages		220V 3ph
27	27.0-30.0	90	Swaging force	kN	2800
30	30.0-33.0	90	Number of swaging/hour		1850
33	33.0-36.0	90	Noise level	dB A	< 65
36	36.0-39.0	90	Protection class		IP 55
39	39.0-45.0	90	Standard controls		semi-automatic
45	45.0-51.0	95	Dimensions:		
51	51.0-57.0	110	Length	mm	1060
57	57.0-66.0	110	Width	mm	865
66	66.0-73.0	110	Height	mm	1500
73	73.0-80.0	125	Weight (with oil)	kg	1300

MAIN APPLICATIONS

Universal professional machine for complete hose range and high production capacity. It is dedicated to professional assemblers for mass production, OEMs assembly shops, large maintenance activities.



KEY PERFORMANCE

Large opening ▪ High crimp force ▪ QC tool and die pods included ▪ Possibility to use large dies for industrial hoses ▪ Large production capacity ▪ Adjustable semi-automatic opening ▪ Low noise level ▪ Easy die set up with quick change tool QCG ▪ Included mirror for an easy control ▪

INCLUDED



Semi-automatic opening **SAO**



Quick change gun **QCG**

OPTIONAL



Touch screen display **TSD**



Electrical foot switch **EFS**



Backstop electrical **EBS**

APPLICABLE PRODUCT RANGE

HOSE TYPE	FITTING TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	MF2000 Multifit, MF3000 OPB & OPNS	3"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	MF2000 Multifit, MF3000 OPB & OPNS MF2000 InterLock, Xtralock	2"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex, Goldenblast
6 wire spirals	MF3000 OPS MF2000 InterLock, Xtralock	2"	Diamondspir up to 2", Goldenblast/six, Rockmaster/13 & 15, Shieldmaster/6000

New!

SWAGING MACHINES

STAND-TYPES



MS 320

ASSEMBLY MASS PRODUCTION

DIE SIZES			TECHNICAL SPECIFICATIONS		
N.	Swaging range	L (mm)	Swaging range	mm	4 - 130
12	12.0-15.0	90	Die stroke	mm	+ 80
15	15.0-18.0	90	Master die shoe length	mm	100
18	18.0-21.0	90	Motor	kW	5.5
21	21.0-24.0	90	Standard voltage	V	400
24	24.0-27.0	90	Optional voltages		220V 3ph
27	27.0-30.0	90	Swaging force	kN	3200
30	30.0-33.0	90	Number of swaging/hour		1600
33	33.0-36.0	90	Noise level	dB A	< 65
36	36.0-39.0	90	Protection class		IP 55
39	39.0-45.0	90	Standard controls		semi-automatic
45	45.0-51.0	100	Dimensions:		
51	51.0-57.0	110	Length	mm	1060
57	57.0-66.0	110	Width	mm	865
66	66.0-73.0	110	Height	mm	1500
73	73.0-80.0	110	Weight (with oil)	kg	1330

MAIN APPLICATIONS

Universal professional machine for complete hose range and high production capacity. It is dedicated to professional assemblers for mass production, OEMs assembly shops, large maintenance activities.



KEY PERFORMANCE

Large opening ▪ High crimp force ▪ QC tool and die pods included ▪ Possibility to use large dies for industrial hoses ▪ Large production capacity ▪ Adjustable semi-automatic opening ▪ Low noise level ▪ Easy die set up with quick change tool QCG ▪ Included mirror for an easy control ▪ Increased swaging force and die stroke compared to MS 280 model ▪

INCLUDED



Semi-automatic opening **SAO**

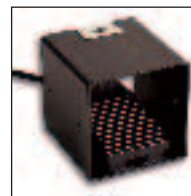


Quick change gun **QCG**

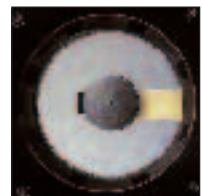
OPTIONAL



Touch screen display **TSD**



Foot switch electrical **EFS**



Backstop electrical **EBS**

APPLICABLE PRODUCT RANGE

HOSE TYPE	FITTING TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	MF2000 Multifit, MF3000 OPB & OPNS	3"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	MF2000 Multifit, MF3000 OPB & OPNS MF2000 InterLock, Xtralock	2"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex, Goldenblast
6 wire spirals	MF3000 OPS MF2000 InterLock, Xtralock	2"	Diamondspir up to 2", Goldenblast/six, Rockmaster/13 & 15, Shieldmaster/6000

MS 400

ASSEMBLY MASS PRODUCTION



DIE SIZES			TECHNICAL SPECIFICATIONS		
N.	Swaging range	L (mm)	Swaging range	mm	4 - 160 (*)
12	12.0-15.0	90	Die stroke	mm	+ 85
15	15.0-18.0	90	Master die shoe length	mm	125
18	18.0-21.0	90	Motor	kW	5.5
21	21.0-24.0	90	Standard voltage	V	400
24	24.0-27.0	90	Optional voltages		220V 3ph
27	27.0-30.0	90	Swaging force	kN	4000
30	30.0-33.0	90	Number of swaging/hour		1400
33	33.0-36.0	90	Noise level	dB A	< 65
36	36.0-39.0	90	Protection class		IP 55
39	39.0-45.0	90	Standard controls		semi-automatic
45	45.0-51.0	100	Dimensions:		
51	51.0-57.0	110	Length	mm	1260
57	57.0-66.0	110	Width	mm	930
66	66.0-73.0	110	Height	mm	1690
73	73.0-80.0	125	Weight (with oil)	kg	2000

(*) 160 mm with special oversized dies

MAIN APPLICATIONS

Heavy duty professional machine for large bore wire spiral hoses with heavy fittings. It is dedicated to specialised assembly shops for large OEM's supplies and special applications.



KEY PERFORMANCE

Heavy duty swager with: Large opening ▪ High crimp force ▪ QC tool and die pods included ▪ Possibility to use large dies for industrial hoses ▪ Large production capacity ▪ Adjustable semi-automatic opening ▪ Low noise level ▪ Easy die set up with quick change tool QCG ▪ Included mirror for an easy control ▪

INCLUDED



Semi-automatic opening **SAO**



Quick change gun **QCG**

OPTIONAL



Touch screen display **TSD**



Electrical foot switch **EFS**



Backstop electrical **EBS**

APPLICABLE PRODUCT RANGE

HOSE TYPE	FITTING TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	MF2000 Multifit, MF3000 OPB & OPNS	3"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	MF2000 Multifit, MF3000 OPB & OPNS MF2000 InterLock, Xtralock	3"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex, Goldenblast
6 wire spirals	MF3000 OPS MF2000 InterLock, Xtralock	3"	Diamondspir up to 3", Goldenblast/six, Rockmaster/13 & 15, Shieldmaster/6000

SWAGING MACHINES

DIE SETS

(lengths mm)

Model	die N°																			
	10	12	15	18	21	24	27	30	33	36	39	45	48	51	57	66	70	73	76	90
MHP 80	56	56	56	56	56	56	56	56	-	-	56 md ^(*)	-	-	-						
MHP 137	56	56	56	56	56	56	56	56	70	70	70	70	-	70						
MB 120	56	56	56	56	56	56	56	56	70	70	70	70	-	70						
MB 137	56	56	56	56	56	56	56	56	75	75	75	75	75	75						
MB 137 S	56	56	56	56	56	56	56	56	75	75	75	75	75	75						
MB 207	56	56	56	56	56	90	90	90	90	90	90	100	-	100						
MB 240	56	56	56	56	56	90	90	90	90	90	90	100	-	100	100	100	100			
MB 263	56	56	56	56	56	90	90	90	90	90	90	100	-	110	110	110	-	125		
MB 340	56	56	56	56	56	90	90	90	90	90	90	100	-	110	110	110	-	125	125	125
MV 137	56	56	56	56	56	56	56	56	75	75	75	75	75							
MV 240	56	56	56	56	56	90	90	90	90	90	90	100	-	100	100	100	100			
MS 140	56	56	56	56	56	56	56	56	75	75	75	75	75							
MS 280	90	90	90	90	90	90	90	90	90	90	90	95	-	110	110	110	-	125	125	125
MS 320	90	90	90	90	90	90	90	90	90	90	90	95	-	110	110	110	-	125	125	125
MS 400	90	90	90	90	90	90	90	90	90	90	90	100	-	110	110	110	-	125	125	125

WHITE special die sets available upon request.

(*) Master die size

QUICK CHANGE SYSTEM

The innovative Quick Change system is available on all our electric swaging machines. It is an essential tool to increase PRODUCTIVITY and COMFORT.

FAST, CLEAN and ERGONOMIC

This system offers the possibility to change all the dies at once thanks to an ergonomic Quick Change Gun QCG. The die sets are cleanly organised and stored in die pods on a wall panel or underneath the machine if the Quick Change Table version is chosen.

EASY and SAFE

The system has also been designed to be very simple to use. Problems of repetitive breakage of die pins are avoided thanks to the fact that the dies are changed in static position.



1



2



3

INSERTING THE DIES

1. Choose the correct die set and take it out of the die rack.
2. Insert the die set in the head, with master dies already closed.
3. Release the die set into the head by pulling the trigger of the QC gun.

TAKING THE DIES OUT

4. Once the dies are closed. Insert the QC Gun in the head until the die set is fixed on the magnets of the QC gun.
5. Pull the QC gun out without pulling the trigger. The die set comes out of the head. The die set is held by the magnets on the gun.
6. Place the die set back into the die rack.



4



5



6



Quick Change Gun QCG

CONTROL SYSTEMS

NUMERICAL VERNIER

This is the standard control offered on our basic machines. This system is well suited for a machine used in a repair workshop where production is mostly composed of single piece assemblies or of small series of hoses.

The crimping diameter is easily adjusted thanks to a numerical vernier with 3 digits. 100 units on the dial are equivalent to a change of 1 mm of the crimping diameter. Thanks to this 3 digit dial, the adjustment of the crimping diameter can be controlled up to 1/100 mm.



SAO (Semi-Automatic Opening) CONTROL

The SAO system is ideal for serial hose assemblies. It is standard included on stand-type machines, optional on benchtop machines.

The crimping diameter is adjusted and controlled thanks to a numerical vernier, like on the standard system.

A knob on the SAO control allows the operator to choose between the manual position (similar to the standard system) or the semi-automatic position.

In semi-automatic position, the dies open automatically after the crimp operation and the operator can adjust this opening so that the dies open just enough to be able to put the next hose in. This reduces considerably the cycle time and increases productivity.



TSD (Touch Screen Display) DIGITAL CONTROL

The digital control is suitable for single piece production and intensive production.

On our models MS 280, MS 400, the digital control is available with an innovative **Touch Screen** interface (TSD).

The swaging diameter is controlled through a digital interface which will automatically determine which die set will be used.

The operator can choose between manual cycle position when making a single hose assembly or semi-automatic cycle position when starting a series of hose assemblies.

The interface also allows the operator to memorize all the parameters of his most common hose assemblies: crimping diameter, fitting reference, hose reference, opening after crimp, tolerance, dwell time.

The Digital Control allows to store hose assembly combinations which can be immediately recalled. No need to adjust a numerical vernier! The digital control does it all for you once the data are stored!

The Digital control functions both with mm and inches.





M[®] 22 CUT HOSE CUTTING

TECHNICAL SPECIFICATIONS		
Motor	kW	2.2
Standard voltage	V	400
Optional voltage		220V 3ph
Blade diameter	mm	300
Speed of the motor	rpm	3000
Max OD of hose	mm	50
Dimensions	mm	500 x 520 x 650
Weight	kg	36

Optional

- Brake motor

MAIN APPLICATIONS

Basic hose cutting machine, benchtop structure.

It is dedicated to the small-medium sizes of the most common hoses used in hydraulic, for small repair shops, distribution shops.



KEY PERFORMANCE

Simple ▪ Sturdy ▪ Large blade, diameter 300 mm (12") ▪ Safety cover ▪

APPLICABLE PRODUCT RANGE

HOSE TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	1.1/4"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	1"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex
6 wire spirals	Not applicable"	–

BENCHTOPS



30 CUT

HOSE CUTTING

TECHNICAL SPECIFICATIONS		
Motor	kW	3
Standard voltage	V	400
Optional voltage		220V 3ph
Blade diameter	mm	300
Speed of the motor	rpm	3000
Diameter of the suction connection	mm	Ø 60
Max OD of hose	mm	85
Dimensions	mm	650 x 420 x 700
Weight	kg	57

Optional

- Brake motor

MAIN APPLICATIONS

High performance hose cutting machine, benchtop structure. It is dedicated to a wide range of the most common hoses used in hydraulics, for small repair shops, distribution centers.



KEY PERFORMANCE

Simple and compact ▪ Sturdy ▪ Large blade, diameter 300 mm (12") ▪ Safety cover ▪ Brake motor available in option for immediate stop of the blade = increased safety ▪ Serrated blade available in option ▪

APPLICABLE PRODUCT RANGE

HOSE TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	2"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	2"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex
6 wire spirals	1.1/4"	–



75 CUT

HOSE CUTTING FOR MASS PRODUCTION

TECHNICAL SPECIFICATIONS		
Motor	kW	7.5
Standard voltage	V	400
Optional voltage		220V 3ph
Blade diameter	mm	520
Speed of the motor	rpm	3000
Diameter of the suction connection	mm	Ø 110
Max OD of hose	mm	125
Dimensions	mm	910 x 820 x 1280
Weight	kg	215

Optional

Pneumatic bending ▪ Dust collector ▪ Brake motor

MAIN APPLICATIONS

Professional hose cutting machine with capability on the whole range of hydraulic hoses. It is dedicated to large assembly production units and maintenance/distribution centers.



KEY PERFORMANCE

Powerful: can cut 2" R13/15 hoses ▪ Large blade, diameter 520 mm (20.5") ▪ Safety cover ▪ Visibility ▪ Possibility to cut large bore sizes ▪

APPLICABLE PRODUCT RANGE

HOSE TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	3"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	2"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex
6 wire spirals	2"	Diamondspir up to 2"

STAND-TYPES

III[®] 90 CUT

HOSE CUTTING FOR MASS PRODUCTION



TECHNICAL SPECIFICATIONS		
Motor	kW	9
Electronic soft start to reduce the amp consumption		
Standard voltage	V	400
Optional voltage		220V 3ph
Blade diameter	mm	520
Standard blade		smooth
Speed of the motor	rpm	3000
Diameter of the suction connection	mm	Ø 110
Max OD of hose	mm	125
Dimensions	mm	1000 x 1060 x 1350
Weight	kg	260

Included

Hydraulic bending ▪ Brake motor ▪ Blade cooling ▪

Optional

Dust collector ▪

MAIN APPLICATIONS

Professional hose cutting machine with capability up to large bore wire spiral hoses. It is dedicated to mass assemblies productions and large distribution maintenance centers.



KEY PERFORMANCE

Powerful: can cut 3" with 6 wire spirals hoses ▪ Large blade, diameter 520 mm (20.5") ▪ Electronic soft start ▪ Electric brake ▪ Hydraulic bending ▪ Blade cooling ▪ Safety cover ▪ Visibility ▪

APPLICABLE PRODUCT RANGE

HOSE TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	3"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	3"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex
6 wire spirals	3"	Diamondspir up to 3"



ML® 50 SKY

EXTERNAL/INTERNAL SKIVING

TECHNICAL SPECIFICATIONS		
Motor	kW	0.25
Standard voltage	V	400
Optional voltage		220V 3ph
Rotation speed	rpm	50
Dimensions	mm	500 x 660 x 360
Weight	kg	45

MAIN APPLICATIONS

Simple benchtop skiving machine dedicated to small maintenance repair shops for internal and external skiving operations.



KEY PERFORMANCE

Compact ▪ Stable ▪ Safety switch on the cover ▪ Hardened adjustment ring on the internal tools ▪ Very high visibility through plexiglas cover ▪

APPLICABLE PRODUCT RANGE

HOSE TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	2"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	2"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex

INCLUDED

External skiving tool



From 1/4" to 2"

OPTIONAL

Internal skiving tool



From 1/2" to 2"

New!

SKIVING MACHINES

M¹⁰⁰ 100 MULTISKY

EXTERNAL/INTERNAL SKIVING



TECHNICAL SPECIFICATIONS			
Motor	kW	0.25	
Standard voltage	V	400	
Optional voltage		220V 3ph	
Rotation speed	1 post	rpm	50
	4 posts	rpm	100
Dimensions	mm	800 x 720 x 1040	
Weight	kg	110	

MAIN APPLICATIONS

Multipost professional skiving machine, for internal and external skiving operations.



KEY PERFORMANCE

3 external skiving posts and 2 internal ▪ Main diameters always ready for use ▪ Safety switch on the cover ▪ Stable ▪ Large tray to collect the rubber ▪ Hardened ring on the internal tools ▪ Very high visibility through plexiglas cover ▪

APPLICABLE PRODUCT RANGE

HOSE TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	2"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	2"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex
6 wire spirals	2"	Diamondspir, Rockmaster/15

INCLUDED

External skiving tool



From 1/4" to 2"

Internal skiving tool



From 1/2" to 2"

SKIVING MACHINES



205 SKY

EXTERNAL/INTERNAL SKIVING

TECHNICAL SPECIFICATIONS		
Motor	kW	0.75
Standard voltage	V	400
Optional voltage		220V 3ph
Rotation speed	rpm	205
Dimensions	mm	1130 x 580 x 550
Weight	kg	130

Optional

Rotation speed adjustment ▪ External and internal skiving tools for 2.1/2" and 3" hoses ▪

MAIN APPLICATIONS

Professional skiving machine, for internal and external skiving operations.



KEY PERFORMANCE

Compact ▪ Stable ▪ Large tray to collect the rubber ▪ Dual safety: cover and tray ▪ Mandrels are hardened and pre-set according to the Manuli skiving lengths ▪ Easy adjustment of the external skiving depth ▪ All skiving tools included up to 2" - 2.1/2" and 3" tools mounted on bearing system ▪

APPLICABLE PRODUCT RANGE

HOSE TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	2"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	2"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex
6 wire spirals	3" 3" with optional skiving tools	Diamondspir, Rockmaster/15

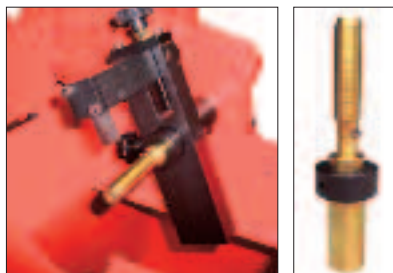
INCLUDED

External skiving tool



From 3/16" to 2"

Internal skiving tool



From 1/2" to 2"

New!

INSERT PUSHING MACHINES

III[®] 350 INS

COUPLING INSERTER



TECHNICAL SPECIFICATIONS		
Capacity	from 1/2" to 1.1/4"	
Push force on the fitting	daN*	350 with 7 bar of air pressure
Hose clamping	daN*	350 with 7 bar of air pressure
Minimum hose OD	mm	20
Maximum hose OD	mm	60
Dimensions	mm	795 x 485 x 240
Weight	kg	32

MAIN APPLICATIONS

Professional insert pushing machine for assemblers involved in small productions up to 1.1/4" and for small repair shops as well.



KEY PERFORMANCE

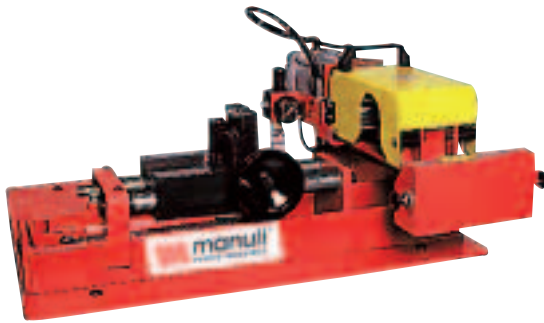
Light ▪ Compact ▪ Robust ▪

APPLICABLE PRODUCT RANGE

HOSE TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	1.1/2"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	1.1/4"	Goldenspir, Rockmaster & Shieldmaster spirals, Xtraflex
6 wire spirals	Not applicable	–

INSERT PUSHING MACHINES

111[®] 1500 INS COUPLING INSERTER



TECHNICAL SPECIFICATIONS		
Capacity	from 1/4" to 2"	
Push force on the fitting	daN	1500 at maximum hydraulic pressure of 120 bar
Hose clamping	daN*	550 with 7 bar of air pressure
Minimum hose OD	mm	28
Maximum hose OD	mm	73
Supplied with hydro-pneumatic foot pump		
Dimensions	mm	750 x 660 x 300
Weight	kg	70

MAIN APPLICATIONS

Professional insert pushing machine for assemblers involved in relevant productions and for small repair shops as well.



KEY PERFORMANCE

Compact ▪ Robust construction ▪ Powerful ▪

OPTIONAL



1/4", 3/8", 1/2" shell
for these hose sizes

APPLICABLE PRODUCT RANGE

HOSE TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	3"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	2"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex
6 wire spirals	2"	Diamondspir up to 2"

New!

PRESSURE TEST MACHINES

MTB 1500

STATIC TEST RIG



TECHNICAL SPECIFICATIONS		
Capacity		from 1/4" to 2"
Maximum pressure	bar	1500
Maximum amount of hoses tested per cycle	hoses	5
Connection diameter	BSP	3/8"
Maximum air input *	bar	8
Test fluid		filtered water through external supply
Dimensions	mm	2500 x 800 x 1050
Weight	kg	175

* Compressor and adapters are not included

MAIN APPLICATIONS

Testing machine for assemblers involved in small quantities. This bench enables to test hoses in order to see if there is any leak or check the burst pressure of the assembly. It can also be supplied to test assemblies up to 2500 bar.



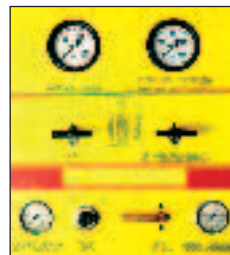
KEY PERFORMANCE

5 hoses can be tested at once ▪ Large testing area ▪ 2 manometers: 0-400 bar for precision reading and 0-1500 bar for high pressure ▪ Double safety on lid to turn the pressure off when opening ▪

OPTIONS

- Test with emulsion in filtered closed circuit
- Digital controls linked to printer for test reports (see picture)

STANDARD



OPTIONAL



APPLICABLE PRODUCT RANGE

HOSE TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	2"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	2"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex, Goldenblast
6 wire spirals	2"	Diamondspir up to 2", Goldenblast/six, Rockmaster/13 & 15

MTB 2500

STATIC TEST RIG



TECHNICAL SPECIFICATIONS		
Capacity		from 1/4" to 2"
Maximum pressure	bar	2500
Maximum amount of hoses tested per cycle	hoses	5
Connection diameter	BSP	3/8"
Maximum air input *	bar	8
Test fluid		filtered water through external supply
Dimensions	mm	2500 x 800 x 1050
Weight	kg	175

* Compressor and adapters are not included

MAIN APPLICATIONS

Testing machine for assemblers involved in small quantities. This bench enables to test hoses in order to see if there is any leak or check the burst pressure of the assembly. It can also be supplied with lower power to test assemblies up to 1500 bar.



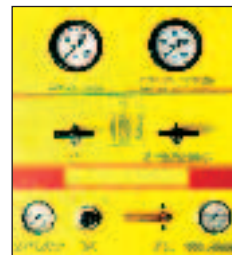
KEY PERFORMANCE

5 hoses can be tested at once ▪ Large testing area ▪ 2 manometers: 0-400 bar for precision reading and 0-2500 bar for high pressure ▪ Double safety on lid to turn the pressure off when opening ▪

OPTIONS

- Test with emulsion in filtered closed circuit
- Digital controls linked to printer for test reports (see picture)

STANDARD



OPTIONAL



APPLICABLE PRODUCT RANGE

HOSE TYPE	MAX. HOSE SIZE	REF. HOSES
2 wire braids and textile	2"	Tractor, Harvester, Lyteflex, Pilot, Cover, Equator, Rockmaster & Shieldmaster braided, Adler, Astro, Multitex, Powerplast, Hydroplast, Spirtex/K
4 wire spirals	2"	Goldenspir, Rockmaster & Shieldmaster spiral, Xtraflex, Goldenblast
6 wire spirals	2"	Diamondspir up to 2", Goldenblast/six, Rockmaster/13 & 15

Swaging machines are considered with a standard die set package (reference enclosed table).

The other die sets are considered as optional

▪

Eventual special or single die sets can be ordered with their respective code

▪

The voltage option must be clearly specified as described in the catalogue (basic solution or optional)

▪

Optionals must be specified in the order of the machine:
(e.g. MB 240 - SAO - EFS - OCT)

PACKAGING

Fumigated pallet and wooden boxes are the standard packaging

DOCUMENTS

Documents included in the package are:

- the user manual
- "CE Certificate"

(included in the user manual)

CONTACTS:

To place your orders or for other information please contact your Local MRI Sales Branch.

WARRANTY

Manuli® products are part of an engineered system, which must be assembled and used specifically and strictly in accordance with Manuli® instructions and limitations.

Don't mix and match: use always Manuli® original couplings and hoses.

Manuli® hose, couplings and assembling machines are tested as an effective and reliable assembly system and the use of other products and or assembly machines may produce hose assemblies that will not meet rated performance. Avoiding to follow any of Manuli® instructions and limitations could lead to premature hose failures resulting in property damage, serious injury or death.

Warranty shall apply only if the customer uses hose, fittings, hose fitting components and assembly equipment specifically tested and approved by Manuli®.

MANULI® DISCLAIMS ANY WARRANTIES, EXPRESS OR IMPLIED, AND ASSUMES NO RESPONSIBILITY OR LIABILITY FOR ANY LOSS OR DAMAGE, WHETHER DIRECT, INDIRECT, CONSEQUENTIAL OR INCIDENTAL WHICH MIGHT ARISE OUT OF CRIMPED HOSE ASSEMBLIES NOT PRODUCED FROM GENUINE MANULI® HOSE FITTINGS, HOSE AND EQUIPMENT, IN CONFORMANCE WITH MANULI® PROCESS SPECIFICATIONS FOR EACH SPECIFIC HOSE ASSEMBLY.

Assembly machines noted in this catalogue are for reference purposes only. Manuli® swaging chart is the official guide for selecting appropriate hose and coupling combinations and determining crimped compatibility. Revision of Manuli® swaging chart are progressively re-issued taking under consideration new products and their modifications.



WARNING !

Failure or improper selection or improper use of any of the products found on this Manuli catalogue or related items can cause death, personal injury and/or property damage. Before using any product, it is important that you analyze all aspects of your application and review the information explained in the current catalogue.

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9. **Tolerances.** Due to MRI's requirements, tolerances of +/-10% of the confirmed quantities, as and if applicable, are always allowed and accepted.
10. **Payment.** Payment shall be made within the agreed upon period from the date of invoice, in the agreed upon currency at the address shown on the invoice. If payment in full is not received by MRI by the due date, the Buyer shall be in breach hereof. The Buyer will incur a charge of 0.6% per month on the unpaid balance to cover the administration costs of collection. Such charges may be in addition to other remedies exercisable by MRI. The amount of credit may be changed or credit withdrawn by MRI at any time. On any order on which credit is not extended by MRI, shipment or delivery shall be made, at MRI's election, Cash on order (in whole or part), letters of credit with all costs of collection paid by the Buyer or other terms as agreed between the parties.
11. **Suspension of the Contract.** Should the Buyer fail to comply in whole or in part even with only one of the supply conditions or if there are any changes of any kind in the Buyer's company name, form or trading capacity, as well as in the event of proven difficulty in meeting the payments to MRI or third parties, MRI will have the right to suspend any further deliveries and convert any premiums that have matured, bank transfers or other deeds of payment unless a suitable guarantee is issued.
12. **Force Majeure.** MRI shall not be responsible for any delay or failure to perform due to causes beyond its reasonable control. These causes shall include, without limitation, fire, flood, earthquake, accident, acts of the public enemy, war, acts of terrorism, riot, epidemic, quarantine restrictions, labor dispute, labor shortages, interruption of transportation, inability to secure raw materials or machinery, extraordinary increases in such raw materials prices, rationing or embargoes, acts of God, acts of Government or any agency thereof, acts of any state or local government or any agency thereof, and judicial action. Similar causes shall excuse the Buyer for failure to take goods ordered by the Buyer, provided reasonable notice is given to MRI of such contingency. However, the Buyer shall not be excused from the terms hereof for (i) any goods shipped prior to receipt of such notice; or (ii) goods already in transit when the contingency occurs.
13. **Limitation of Liabilities.** THE BUYER AND MRI AGREE THAT (I) THE SOLE AND EXCLUSIVE REMEDIES FOR BREACH OF ANY WARRANTY CONCERNING THE GOODS SHALL BE REPAIR OR REPLACEMENT OF THOSE GOODS OR THEIR COMPONENT PARTS OR REFUND OF THE PURCHASE PRICE; AND (II) MRI SHALL HAVE THE EXCLUSIVE RIGHT TO SELECT ANY SUCH REMEDY IN ITS SOLE DISCRETION.

MRI SHALL NOT BE LIABLE FOR CONTINGENT, INCIDENTAL OR CONSEQUENTIAL DAMAGES TO PERSONS OR PROPERTY AND MRI'S SOLE LIABILITIES AND BUYER'S EXCLUSIVE REMEDIES HEREUNDER ARE AS PROVIDED IN THESE STANDARD TERMS AND CONDITIONS OF SALES. MRI SHALL NOT BE LIABLE FOR ANY EXCESS REPROCUREMENT COSTS, SPECIFIC PERFORMANCE OR DELAY IN DELIVERY.

SALES TERMS & CONDITIONS

Notwithstanding any implication to the contrary, MRI shall have no liability whatsoever unless and until the Buyer shall have paid the full purchase price of all goods delivered.





14. **Warranty and claims.** MRI warrants that the Products will be free of defects in material and workmanship for a period equal to twelve (12) months from the date of shipping from MRI to the Buyer or, with the sole exception of assembly machines, within two thousand (2000) hours of use, whichever comes first. In case of claims presented in the correct way and regarded as founded, MRI agrees to replace or repair the defective product when these are returned to its premises.
 - a. This warranty does not cover any faults caused by normal deterioration, accelerated deterioration caused by special physical, chemical or electrochemical conditions, insufficient maintenance or incorrect repair, failure to follow the storage, user and operating instructions, use of unsuitable materials, the effects of a chemical or electrolyte process, assembly operations not carried out using only MRI's original parts or MRI's original certified parts, using MRI's assembly machines and in strict accordance with MRI's latest assembly instructions to be found always updated at www.manuli-hydraulics.com, or any other faults arising as a result of circumstances over which the supplier has no control. This warranty does not cover faults caused by modifications made by the customer or a third party, or assembly or installation operations carried out by these latter without observance of the operating and installation conditions and/or the technical specifications of the products.
 - b. IN NO EVENT SHALL MRI BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. NO PRODUCT IS WARRANTED AS BEING FIT FOR A PARTICULAR PURPOSE. The warranties described above apply only if (i) the Product has not been misused, tampered or abused in any manner nor have repairs been attempted thereon; (ii) written notice of failure within the warranty period is forwarded to MRI and MRI's direction for properly identifying Products returned under warranty are followed; and (iii) with the return, a notice authorizing MRI to examine and disassemble returned Products to the extent MRI deems it necessary to ascertain the cause of failure. The warranties stated herein are exclusive. THERE ARE NO OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED, BEYOND THOSE SET FORTH HEREIN, and MRI does not assume any other obligation or liability in connection with the sale or use of the Products.
 - c. The receipt by the Buyer or its customer(s) of any of the Products shall constitute the Buyer' unqualified acceptance of same and waiver by the Buyer of all claims hereunder (OTHER THAN CLAIMS NOT DISCOVERABLE UPON RECEIPT AND INSPECTION) unless the Buyer gives written notice of the same to MRI within eight (8) days after its receipt or, in the event of concealed defects, the claim should be sent to MRI in writing within eight (8) days of their discovery, and in any case within a period of twelve (12) months from shipping from MRI to the Buyer, or, with the sole exception of assembly machines, within two thousand (2000) hours of use, whichever comes first. In any case, whenever possible, the Buyer shall send MRI a sample of the defective product to follow up the claim procedure.
 - d. No claim of any kind, where as to Products delivered or for delay in delivery or failure to deliver, and whether or not based on negligence, shall be greater in amount than the purchase price of the Products with respect to which such claim is made. IN NO EVENT SHALL MRI BE LIABLE FOR INDIRECT, INCIDENTAL SPECIAL, OR CONSEQUENTIAL DAMAGES, WHETHER OR NOT CAUSED BY OR RESULTING FROM THE NEGLIGENCE THEREOF. It is expressly understood that any technical advice furnished by MRI with respect to the use of the Products, shall not be deemed to be a representation that the Products may be so used successfully or that such use will offer any specific result, and MRI does not assume any obligation or liability for any advice given or results obtained.
- e. The Buyer shall indemnify and hold MRI harmless against any and all loss damage, cost, or expense of any kind incurred by reason of any negligence, breach or other fault of the Buyer imposed by law upon MRI for damages assessed because of property damage or bodily injuries or death sustained or resulting from the sale, use, or handling of the Products except to the extent caused by the negligence of or breach of this Agreement by MRI, and the MRI has notified the Buyer in writing of any third party's claims or demands within sixty (60) days after MRI received notice thereof.
15. **Reserve.** For the orders sent to MRI on-line, these will be accepted only after the correct completion of the activation procedure described in point 2.C above, which takes place using a user-id and password. The Buyer is aware that the revelation of the user-id and password to unauthorized parties would enable these to make orders in his name. Consequently, the Buyer will guard his identity code and password with maximum diligence and reserve, as he will be held responsible for any abusive use of these. MRI will take no responsibility for abusive use of the user-id and password, and the order will remain fully valid and effective after confirmation of it has been issued.
 - a. The Buyer agrees to exonerate MRI from any action, request or claim, including claims for compensation for damages, deriving directly or indirectly from the use or abuse of the user-id and password by any party.
 - b. The Buyer agrees to inform MRI of the loss or theft of the password, whereupon MRI will deactivate the password in question and issue a new one.
16. **Entire Agreement.** THESE TERMS AND CONDITIONS, INCLUDING THE LIMITED WARRANTY AND DISCLAIMER AND LIMITATIONS OF LIABILITY, ARE A COMPLETE AND FULL EXPRESSION OF THE AGREEMENT BETWEEN THE PARTIES. The terms hereof may not be varied, supplemented, qualified, modified, waived or interpreted by any prior or subsequent course of performance or conduct between the parties (including the shipment of goods hereunder) or by any usage of the trade or by conflicting or additional terms upon the face or reverse of any form to which this is attached or a part of, nor may it be modified by any agent, employee, or representatives of MRI unless such modification or representation is made in writing and signed by a duly authorized officer of MRI. Stenographic or clerical errors are subject to correction.
17. **Severability.** If any term of this Agreement is held to be illegal or unenforceable, such term shall be severed from this Agreement and the remaining terms shall remain in force.
18. **Assigns.** This Agreement shall be binding on and inure to the benefit of the successors and assigns of the entire business and goodwill of either MRI or Buyer, or of that part of the business of either used in the performance of such contract, but shall not be otherwise assignable by Buyer.
19. **Proprietary Rights.** Trademarks, service marks and other product identifications are MRI's property at all times and shall only be used in connection with the products. The Buyer shall not remove or deface any such marks.
20. **Correspondence.** All correspondence regarding this contract will be sent to MRI's Customer Service structure:
fax: +48 32 2220147;
help desk: +48 32 2220222;
email address: customerservice@manulirubber.com
21. **Interpretation.** The validity, performance and construction of these terms and conditions and any sale made hereunder shall be governed by the laws of the Italy. All the terms hereof shall be interpreted in the manner which enhances its enforceability.

COMMERCIAL NETWORK

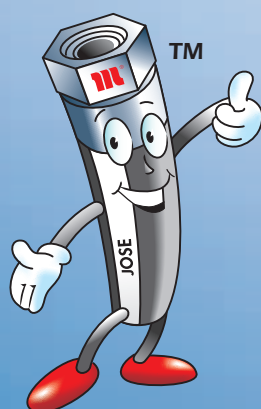
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Legends:

-  **Corporate Headquarters**
-  **Distribution Companies**
-  **MRO Sales Branches & Warehouse**
-  **OEM Assembly Units**





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