

Massima forza, tenuta stelo - Maximum force, rod seal - Maximale Kraft, Kolbenstange dichtung
 Forces maximale, joint de tige - Máxima fuerza, estanqueidad vástago - Força máxima, estanquidade na haste

SEALING	ROD SEAL
DESIGN	BOTTOM BASE - BODY DESIGN

1	Retaining ring	5	Valve	9	Back-up ring
2	Dual ring seal	6	Body	10	Rod wiper
3	Bottom base	7	Guide ring	11	Rod (nitrited superfinished)
4	Plug	8	Rod seal	12	Groove for secondary wiper

RANGE CHART

Model	Body Ø		Stroke Cu		Initial force F0						
	mm	inch	mm	inch	daN	lb	OSAS	USAS	OPAS	SKUDO	SW
ML 300	25	0.98	10 - 80	0.39 - 3.15	310	697	✓	✓	-	-	✓
ML 500	32	1.26	10 - 80	0.39 - 3.15	510	1147	✓	✓	-	-	✓
ML 1000	38	1.50	10 - 80	0.39 - 3.15	980	2203	✓	✓	✓	-	✓
ML 1000 N	38	1.50	10 - 80	0.39 - 3.15	980	2203	✓	✓	✓	-	✓
ML 1800	50	1.97	15 - 80	0.59 - 3.15	1925	4327	✓	✓	✓	-	✓
ML 1800 N	50	1.97	15 - 80	0.59 - 3.15	1925	4327	✓	✓	✓	-	✓
ML 3000	63	2.48	15 - 80	0.59 - 3.15	3180	7149	✓	✓	✓	-	✓
ML 3000 N	63	2.48	15 - 80	0.59 - 3.15	3180	7149	✓	✓	✓	-	✓
ML 4700	75	2.95	15 - 80	0.59 - 3.15	4925	11701	✓	✓	✓	-	✓
ML 4700 N	75	2.95	15 - 80	0.59 - 3.15	4925	11701	✓	✓	✓	-	✓
ML 7500	95	3.74	15 - 80	0.59 - 3.15	7700	17310	✓	✓	✓	-	✓
ML 7500 N	95	3.74	15 - 80	0.59 - 3.15	7700	17310	✓	✓	✓	-	✓
ML 12000	120	4.72	15 - 80	0.59 - 3.15	12720	28595	✓	✓	✓	-	✓
ML 12000 N	120	4.72	15 - 80	0.59 - 3.15	12720	28595	✓	✓	✓	-	✓

✓ Built-in as standard

✓ Optional upon request

HOW TO ORDER

Series _____ Revision code _____

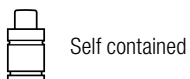
Model **ML 1800-050-D-E-W**

Stroke _____ Version _____

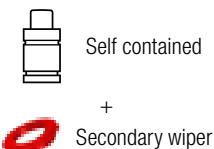
Available versions



ML 1800-050-D
Standard code



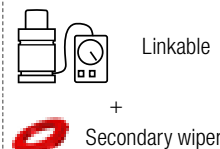
ML 1800-050-D-W
Add "-W" to standard code



ML 1800-050-D-N
Add "-N" to standard code



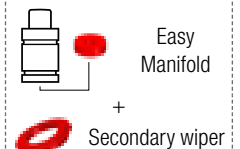
ML 1800-050-D-N-W
Add "-N-W" to standard code



ML 1800-050-D-E
Add "-E" to standard code



ML 1800-050-D-E-W
Add "-E-W" to standard code





SW

ACTIVE SAFETY



OSAS



USAS

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

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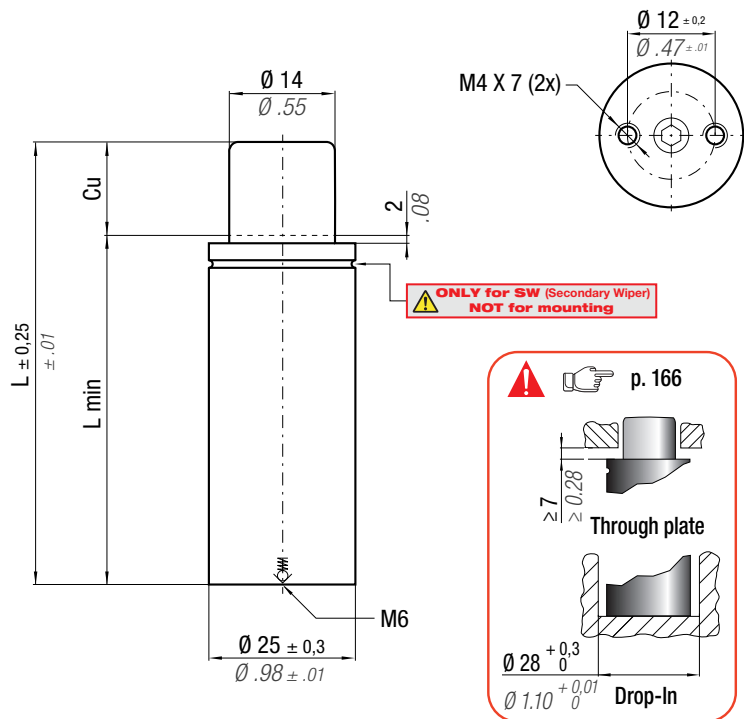
O novo código irá ser fornecido apenas quando o antigo esgotar stock

* $F_{1i} =$

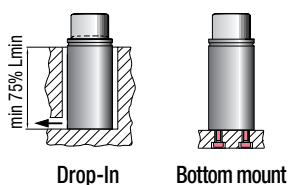
Isothermal end force p. 16

** $F_{1p} =$

Polytropic end force at 100% Cu



N ₂	0 - 80 °C 32 - 176 °F	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 1,54 cm ² 0.239 in ²	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s 62.9 in/s	Maintenance kit Disposable	
CODE	NEW	Cu	L	L min	F ₀	F _{1i} *	F _{1p} **	V ₀	PED 2014/68/EU
PHASING OUT from 05/2019		mm inch	mm inch	mm inch	Initial force daN lb	End force * daN lb	End force ** daN lb	cm ³ in ³	~Kg ~lb
ML 300 - 010 - C	ML 300 - 010 - D	10 0.39	75 2.95	65 2.56	310 697 ± 5%	430 967	484 1087	6,8 0.41	0,17 0.37
ML 300 - 015 - C	ML 300 - 015 - D	15 0.59	85 3.35	70 2.76		467 1050	534 1201	8,5 0.52	0,18 0.40
ML 300 - 025 - C	ML 300 - 025 - D	25 0.98	105 4.13	80 3.15	200 bar 2900 psi	518 1164	605 1360	11,8 0.72	0,21 0.46
ML 300 - 038 - C	ML 300 - 038 - D	38 1.50	130 5.12	92 3.62		566 1272	674 1514	15,7 0.96	0,24 0.53
ML 300 - 050 - C	ML 300 - 050 - D	50 1.97	155 6.10	105 4.13	+20 °C +68 °F	583 1311	698 1570	20,0 1.22	0,27 0.60
ML 300 - 063 - C	ML 300 - 063 - D	63 2.48	185 7.28	122 4.80		580 1303	693 1558	25,3 1.54	0,31 0.68
ML 300 - 080 - C	ML 300 - 080 - D	80 3.15	220 8.66	140 5.51		595 1337	715 1608	31,2 1.90	0,35 0.77

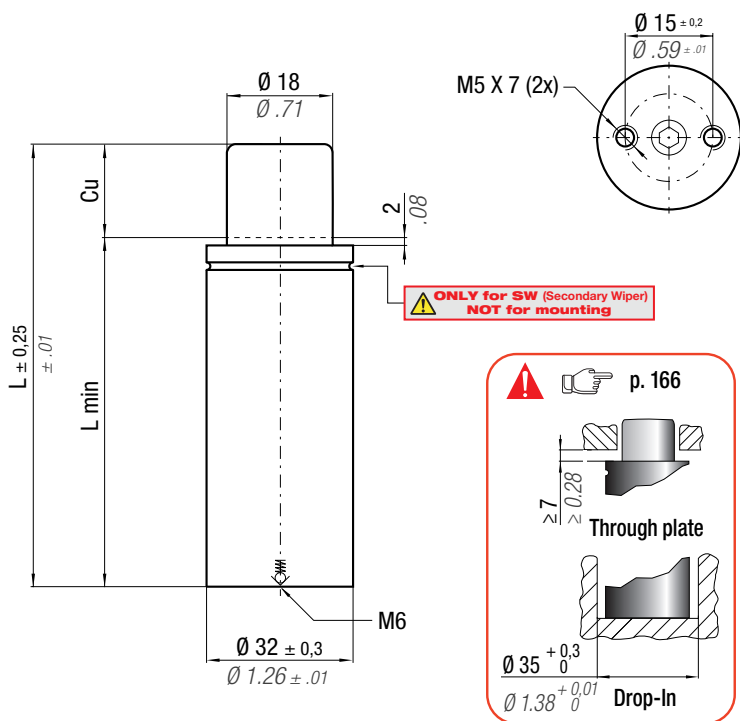


HOW TO ORDER

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INSTALLATION GUIDELINE

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* $F_{1i} =$

Isothermal end force at 100% Cu



p. 16



** $F_{1p} =$

Polytrophic end force at 100% Cu



SW

ACTIVE SAFETY

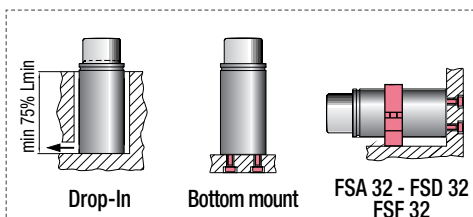


OSAS



USAS

N ₂		0 - 80 °C 32 - 176 °F	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 2,54 cm ² 0.394 in ²	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s 62.9 in/s	Maintenance kit Disposabile
CODE	NEW	Cu	L	L min	F ₀	F _{1i} *	F _{1p} **	V ₀	PED 2014/68/EU
PHASING OUT from 05/2019		mm / inch	mm / inch	mm / inch	Initial force daN / lb	End force * daN / lb	End force ** daN / lb	cm ³ / in ³	~Kg / ~lb
ML 500 - 010 - C	ML 500 - 010 - D	10 / 0.39	75 / 2.95	65 / 2.56	510 / 1147	718 / 1614	809 / 1819	11,0 / 0.67	0,28 / 0.62
ML 500 - 015 - C	ML 500 - 015 - D	15 / 0.59	85 / 3.35	70 / 2.76	± 5%	775 / 1742	887 / 1994	13,9 / 0.85	0,30 / 0.66
ML 500 - 025 - C	ML 500 - 025 - D	25 / 0.98	105 / 4.13	80 / 3.15		849 / 1908	990 / 2226	19,7 / 1.20	0,34 / 0.75
ML 500 - 038 - C	ML 500 - 038 - D	38 / 1.50	130 / 5.12	92 / 3.62	200 bar 2900 psi	917 / 2061	1087 / 2443	26,7 / 1.63	0,39 / 0.86
ML 500 - 050 - C	ML 500 - 050 - D	50 / 1.97	155 / 6.10	105 / 4.13		937 / 2107	1116 / 2510	34,1 / 2.08	0,43 / 0.95
ML 500 - 063 - C	ML 500 - 063 - D	63 / 2.48	190 / 7.48	127 / 5.00		892 / 2006	1052 / 2364	46,0 / 2.81	0,51 / 1.12
ML 500 - 080 - C	ML 500 - 080 - D	80 / 3.15	225 / 8.86	145 / 5.71	+20 °C +68 °F	916 / 2059	1086 / 2441	56,3 / 3.44	0,57 / 1.26



HOW TO ORDER

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INSTALLATION GUIDELINE

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SW

ACTIVE SAFETY



OSAS



USAS



OPAS

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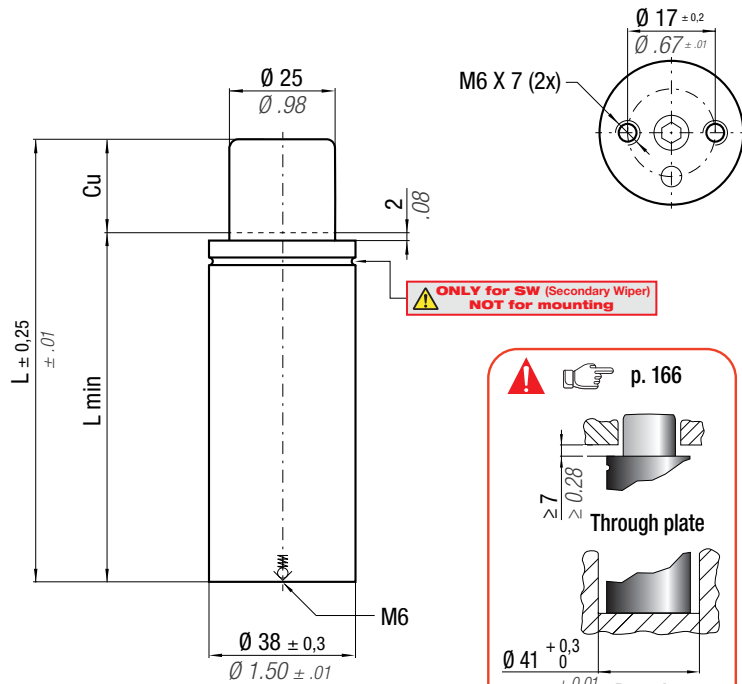
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* $F_{1i} =$

Isothermal end force at 100% Cu

** $F_{1p} =$

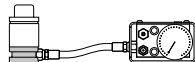
Polytrophic end force at 100% Cu



N ₂	0 - 80 °C 32 - 176 °F	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 4,91 cm ² 0.761 in ²	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s 62.9 in/s	Maintenance kit 39BMML01000C
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CODE PHASING OUT from 05/2019	NEW	Cu		L		L min		F ₀ Initial force		F _{1i} * End force *		F _{1p} ** End force **		V ₀		PED 2014/68/EU		
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm ³	in ³		~Kg	~lb
ML 1000 - 010 - C	ML 1000 - 010 - D	10	0.39	75	2.95	65	2.56	980	2203	1377	3096	1550	3485	21,6	1.32	0,37	0.82	✓
ML 1000 - 015 - C	ML 1000 - 015 - D	15	0.59	85	3.35	70	2.76											
ML 1000 - 025 - C	ML 1000 - 025 - D	25	0.98	105	4.13	80	3.15	200 bar	2900 psi	1700	3822	1999	4494	35,8	2.18	0,45	0.99	✓
ML 1000 - 038 - C	ML 1000 - 038 - D	38	1.50	135	5.31	97	3.82											
ML 1000 - 050 - C	ML 1000 - 050 - D	50	1.97	160	6.30	110	4.33	+20 °C	+68 °F	1871	4206	2244	5045	63,1	3.85	0,60	1.32	✓
ML 1000 - 063 - C	ML 1000 - 063 - D	63	2.48	205	8.07	142	5.59											
ML 1000 - 080 - C	ML 1000 - 080 - D	80	3.15	240	9.45	160	6.30	1805	4058	2149	4830	105,6	6.44	0,82	1.81	✓		

KIT FOR LINKING



code: 39FML01000D



Seal (1x)



Washer (4x)



Screw (2x)



Bottom base (1x)



Valve (1x)

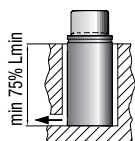
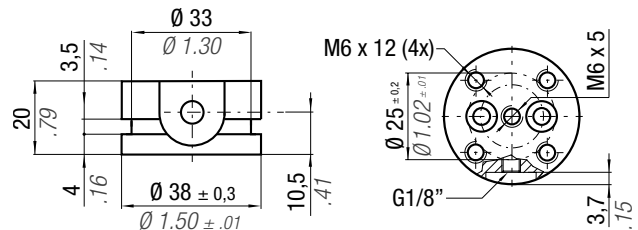


Instructions



Sostituire ogni 1.000.000 di cicli. Replace every 1 million cycles. Nach 1 Mio. Hübe austauschen. Reemplazar a cada 1 millón de ciclos. Substituir a cada 1 milhão de ciclos.

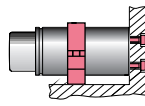
Bottom base dimension



Drop-In



Bottom mount



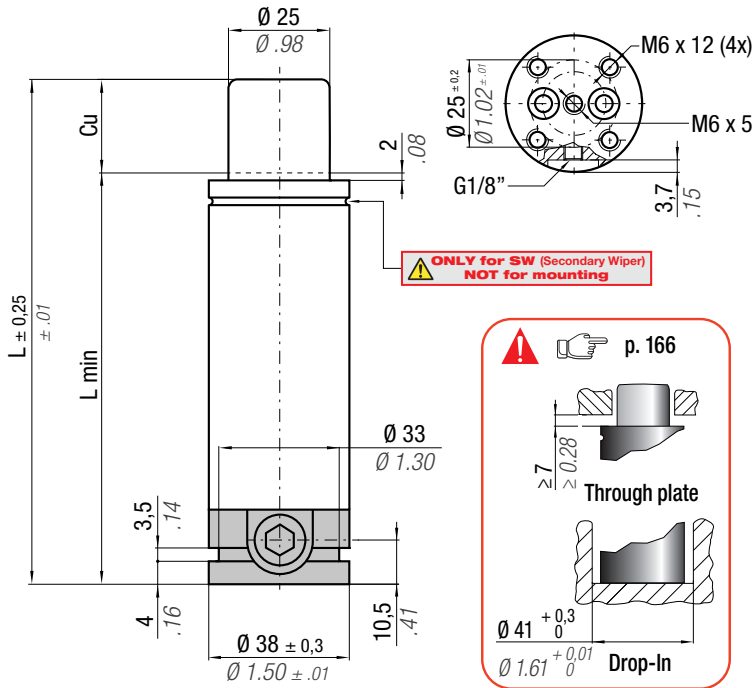
FSA 38 - FSD 38
FSF 38

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* $F_{1i} =$

Isothermal end force at 100% Cu



p. 16



** $F_{1p} =$

Polytrophic end force at 100% Cu



SW

ACTIVE SAFETY



OSAS



USAS



OPAS

N ₂		0 - 80 °C 32 - 176 °F	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 4,91 cm ² 0.761 in ²	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s 62.9 in/s	Maintenance kit 39BMMLO1000C
CODE	NEW	Cu	L	L min	F ₀	F _{1i} *	F _{1p} **	V ₀	
PHASING OUT from 05/2019		mm inch	mm inch	mm inch	Initial force daN lb	End force * daN lb	End force ** daN lb	cm ³ in ³	~Kg ~lb
ML1000-010-C-N	ML1000-010-D-N	10 0.39	95 3.74	85 3.35	980 2203	1377 3096	1550 3485	21,6 1.32	0,52 1.15
ML1000-015-C-N	ML1000-015-D-N	15 0.59	105 4.13	90 3.54	± 5%	1509 3392	1731 3892	26,3 1.60	0,55 1.21
ML1000-025-C-N	ML1000-025-D-N	25 0.98	125 4.92	100 3.94		1700 3822	1999 4494	35,8 2.18	0,60 1.32
ML1000-038-C-N	ML1000-038-D-N	38 1.50	155 6.10	117 4.61	200 bar	1782 4007	2116 4757	51,0 3.11	0,68 1.50
ML1000-050-C-N	ML1000-050-D-N	50 1.97	180 7.09	130 5.12	2900 psi	1871 4206	2244 5045	63,1 3.85	0,75 1.65
ML1000-063-C-N	ML1000-063-D-N	63 2.48	225 8.86	162 6.38		1721 3868	2028 4560	88,8 5.42	0,88 1.94
ML1000-080-C-N	ML1000-080-D-N	80 3.15	260 10.24	180 7.09	+20 °C +68 °F	1805 4058	2149 4830	105,6 6.44	0,98 2.16

SERVICE BOX

code: 39SKML01000A



Seal (1x)



Washer (4x)



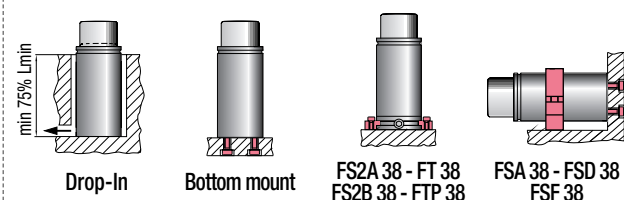
Screw (2x)



Instructions



Sostituire ogni 1.000.000 di cicli. Rempilacez à chaque million de cycles.
Replace every 1 million cycles. Reemplazar cada 1 millón de ciclos.
Nach 1 Mio. Hübe austauschen. Substituir a cada 1 milhão de ciclos.



HOW TO ORDER

Hand icon p. 167

INSTALLATION GUIDELINE

Hand icon p. 205



SW

Il nuovo codice sarà fornito solo ad esaurimento del vecchio
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ACTIVE SAFETY



OSAS

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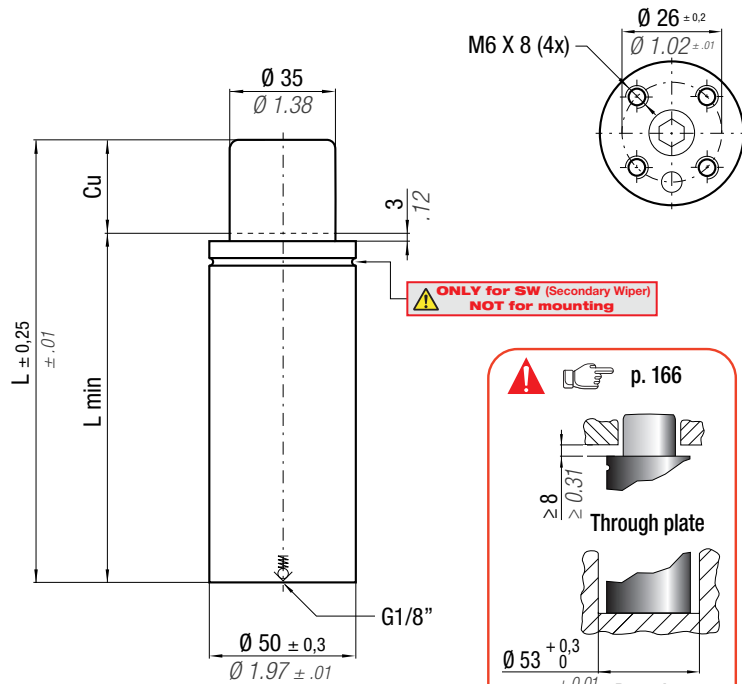
USAS

easu MANIFOLD p. 247



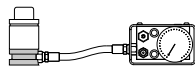
OPAS

* F_{1i} = Isothermal end force at 100% Cu p. 16
 ** F_{1p} = Polytrophic end force at 100% Cu



N ₂	0 - 80 °C 32 - 176 °F	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 9,62 cm ² 1.491 in ²	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s 62.9 in/s	Maintenance kit 39BMMLO1800C	
CODE	NEW	Cu	L	L min	F ₀	F _{1i} *	F _{1p} **	V ₀	2014/68/EU
PHASING OUT from 05/2019		mm inch	mm inch	mm inch	Initial force daN lb	End force * daN lb	End force ** daN lb	cm ³ in ³	~Kg ~lb
ML 1800 - 015 - C	ML 1800 - 015 - D	15 0.59	95 3.74	80 3.15	1925 4327	2828 6358	3215 7227	57 3.46	0,76 1.68
ML 1800 - 025 - C	ML 1800 - 025 - D	25 0.98	115 4.53	90 3.54	± 5%	3198 7189	3728 8381	75 4.56	0,85 1.87
ML 1800 - 038 - C	ML 1800 - 038 - D	38 1.50	150 5.91	112 4.41	200 bar 2900 psi	3274 7359	3835 8621	110 6.69	1,01 2.23
ML 1800 - 050 - C	ML 1800 - 050 - D	50 1.97	175 6.89	125 4.92		3471 7802	4115 9252	133 8.10	1,12 2.47
ML 1800 - 063 - C	ML 1800 - 063 - D	63 2.48	205 8.07	142 5.59		3568 8021	4254 9564	161 9.84	1,26 2.78
ML 1800 - 080 - C	ML 1800 - 080 - D	80 3.15	245 9.65	165 6.50	+20 °C +68 °F	3642 8188	4362 9805	200 12.18	1,44 3.17

KIT FOR LINKING



code: 39FML01800C



Seal (1x)



Washer (4x)



Screw (2x)



Bottom base (1x)

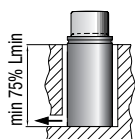
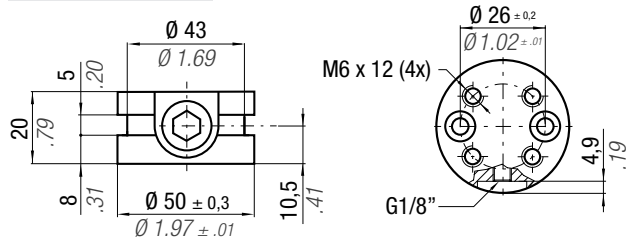
Valve (1x)

 Instructions

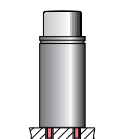


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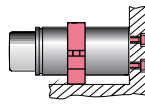
Bottom base dimension



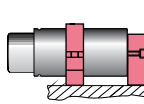
Drop-In



Bottom mount



FSA 50 - FSD 50
FSE 50



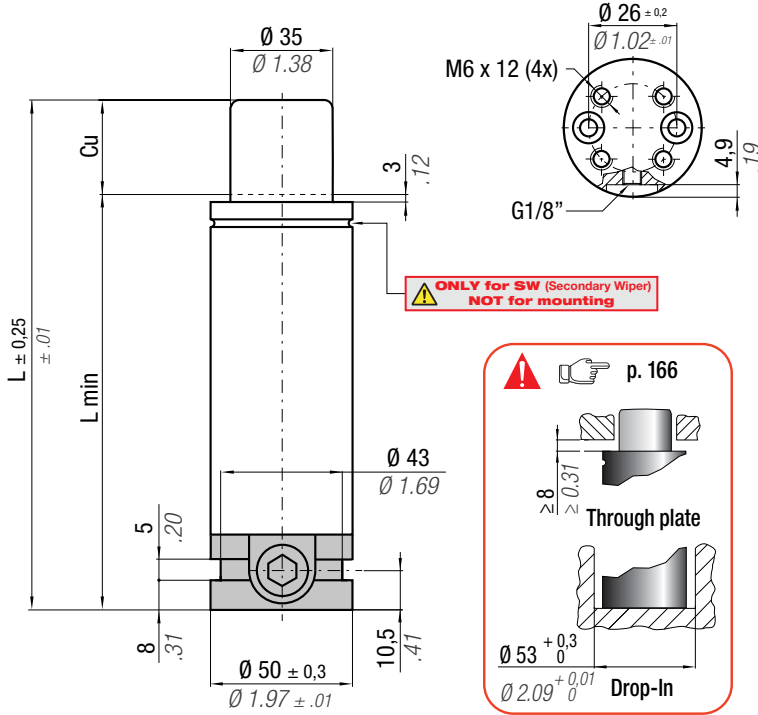
FSD 50 + R 50 A
FSE 50 + R 50 A

HOW TO ORDER

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Isothermal end force at 100% Cu



p. 16



** $F_{1p} =$

Polytrophic end force at 100% Cu



SW

ACTIVE SAFETY



OSAS



USAS



OPAS

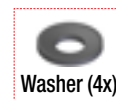
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CODE	NEW	Cu	L	L min	F ₀	F _{1i} *	F _{1p} **	V ₀	
PHASING OUT from 05/2019		mm inch	mm inch	mm inch	Initial force daN lb	End force * daN lb	End force ** daN lb	cm ³ in ³	~Kg ~lb
ML1800-015-C-N	ML1800-015-D-N	15 0.59	115 4.53	100 3.94	1925 4327	2828 6358	3215 7227	57 3.46	1,03 2.27
ML1800-025-C-N	ML1800-025-D-N	25 0.98	135 5.31	110 4.33	± 5%	3198 7189	3728 8381	75 4.56	1,12 2.47
ML1800-038-C-N	ML1800-038-D-N	38 1.50	170 6.69	132 5.20	200 bar 2900 psi	3274 7359	3835 8621	110 6.69	1,28 2.82
ML1800-050-C-N	ML1800-050-D-N	50 1.97	195 7.68	145 5.71		3471 7802	4115 9252	133 8.10	1,39 3.06
ML1800-063-C-N	ML1800-063-D-N	63 2.48	225 8.86	162 6.38		3568 8021	4254 9564	161 9.84	1,53 3.37
ML1800-080-C-N	ML1800-080-D-N	80 3.15	265 10.43	185 7.28	+20 °C +68 °F	3642 8188	4362 9805	200 12.18	1,71 3.77

SERVICE BOX

code: 39SKML01800A



Seal (1x)



Washer (4x)



Screw (2x)



Instructions



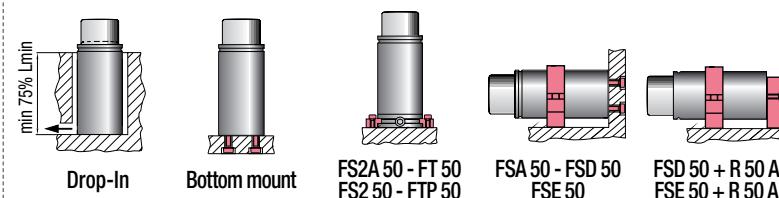
Sostituire ogni 1.000.000 di cicli. REMPLACEZ À CHAQUE MILLION DE CYCLES.
 Replace every 1 million cycles. REEMPLAZAR CADA 1 MILLÓN DE CICLOS.
 Nach 1 Mio. Hübe austauschen. SUBSTITUIR A CADA 1 MILHÃO DE CICLOS.

HOW TO ORDER

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INSTALLATION GUIDELINE

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SW

ACTIVE SAFETY



OSAS



USAS



OPAS

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird nur angegeben, wenn der alte nicht mehr lieferbar ist

Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

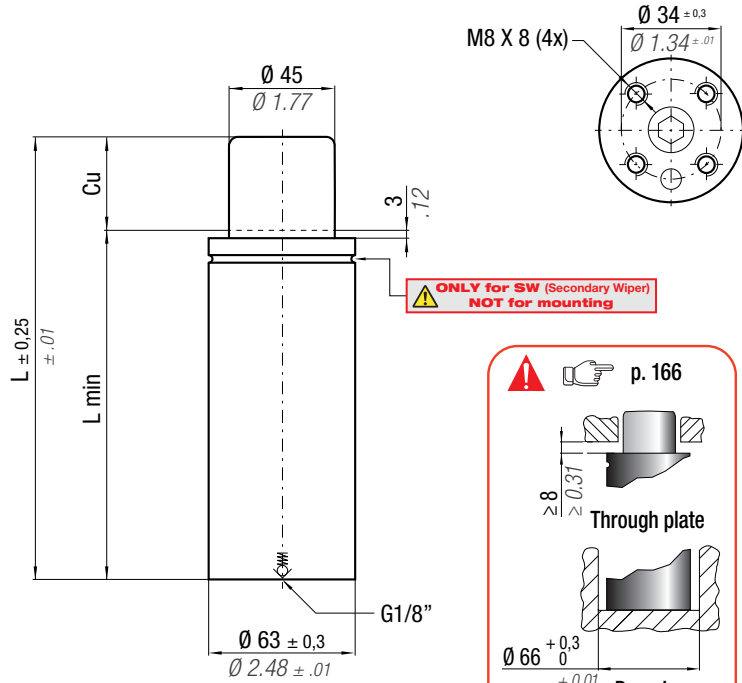
El nuevo código será suministrado sólo cuando se agoten las existencias del antiguo

O novo código irá ser fornecido apenas quando o antigo esgotar stock



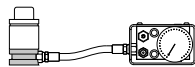
* F_{1i} = Isothermal end force at 100% Cu p. 16

** F_{1p} = Polytrophic end force at 100% Cu p. 16



N ₂		0 - 80 °C 32 - 176 °F	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 15,90 cm ² 2.464 in ²	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s 62.9 in/s	Maintenance kit 39BMMLO3000C
CODE	NEW	Cu	L	L min	F ₀	F _{1i} *	F _{1p} **	V ₀	
PHASING OUT from 05/2019		mm inch	mm inch	mm inch	Initial force	End force *	End force **	cm ³ in ³	~Kg ~lb
ML 3000 - 015 - C	ML 3000 - 015 - D	15 0.59	100 3.94	85 3.35	3180 7149	4461 10029	5023 11291	105 6.40	1,25 2.76
ML 3000 - 025 - C	ML 3000 - 025 - D	25 0.98	120 4.72	95 3.74	± 5%	5013 11270	5781 12997	136 8.27	1,38 3.04
ML 3000 - 038 - C	ML 3000 - 038 - D	38 1.50	150 5.91	112 4.41	200 bar	5362 12054	6269 14094	184 11.22	1,57 3.46
ML 3000 - 050 - C	ML 3000 - 050 - D	50 1.97	180 7.09	130 5.12	2900 psi	5491 12344	6452 14505	233 14.24	1,78 3.92
ML 3000 - 063 - C	ML 3000 - 063 - D	63 2.48	210 8.27	147 5.79		5658 12720	6690 15039	282 17.19	1,98 4.37
ML 3000 - 080 - C	ML 3000 - 080 - D	80 3.15	250 9.84	170 6.69	+20 °C +68 °F	5793 13023	6882 15472	347 21.14	2,24 4.94

KIT FOR LINKING



code: 39FML03000B



Seal (1x)



Washer (6x)



Screw (3x)



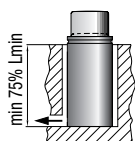
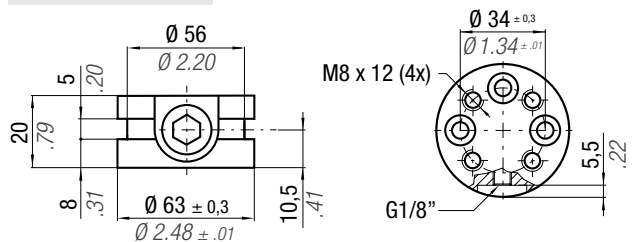
Bottom base (1x)

Valve (1x)
Instructions



Sostituire ogni 1.000.000 di cicli. Replac every 1 million cycles. Nach 1 Mio. Hübe austauschen. Reemplazar a cada 1 millón de ciclos. Substituir a cada 1 milhão de ciclos.

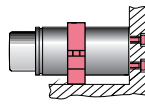
Bottom base dimension



Drop-In



Bottom mount



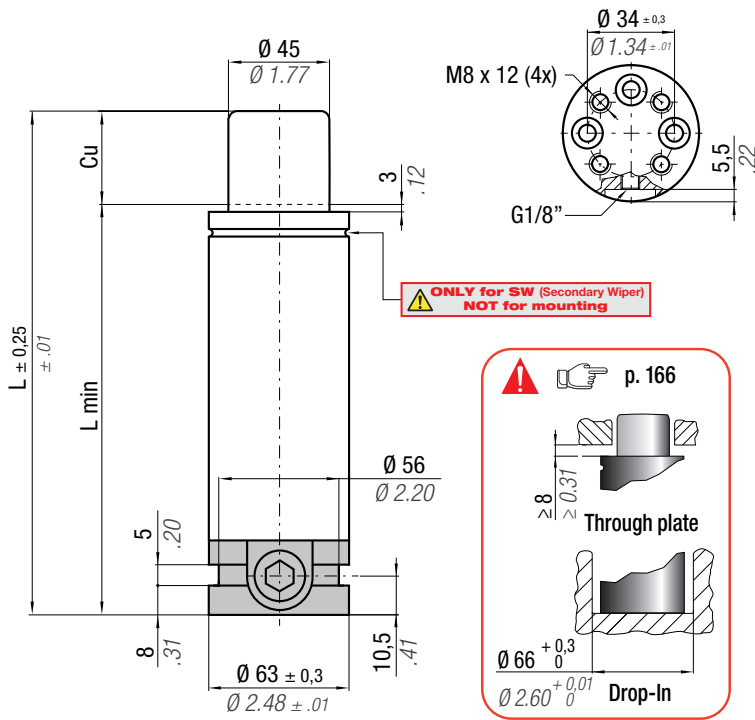
FSC 63 - FSD 63

HOW TO ORDER

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INSTALLATION GUIDELINE

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Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird nur angegeben, wenn der alte nicht mehr lieferbar ist

Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

El nuevo código será suministrado sólo cuando se agoten las existencias del antiguo

O novo código irá ser fornecido apenas quando o antigo esgotar stock

* F_{1i} =

Isothermal end force at 100% Cu

p. 16

** F_{1p} =

Polytrophic end force at 100% Cu



SW

ACTIVE SAFETY



OSAS



USAS



OPAS

CODE	PHASING OUT from 05/2019	NEW	Cu		L		L min		F0		F _{1i} *		F _{1p} **		V0		Maintenance kit		
			mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm ³	in ³	~Kg	~lb	
ML3000-015-C-N		ML3000-015-D-N	15	0.59	120	4.72	105	4.13	3180	7149	4461	10029	5023	11291	105	6.40	1,67	3.68	✓
ML3000-025-C-N		ML3000-025-D-N	25	0.98	140	5.51	115	4.53	± 5%	5013	11270	5781	12997	136	8.27	1,80	3.97	✓	
ML3000-038-C-N		ML3000-038-D-N	38	1.50	170	6.69	132	5.20	200 bar	5362	12054	6269	14094	184	11.22	2,00	4.41	✓	
ML3000-050-C-N		ML3000-050-D-N	50	1.97	200	7.87	150	5.91	2900 psi	5491	12344	6452	14505	233	14.24	2,20	4.85	✓	
ML3000-063-C-N		ML3000-063-D-N	63	2.48	230	9.06	167	6.57		5658	12720	6690	15039	282	17.19	2,40	5.29	✓	
ML3000-080-C-N		ML3000-080-D-N	80	3.15	270	10.63	190	7.48	+20 °C +68 °F	5793	13023	6882	15472	347	21.14	2,66	5.86	✓	

SERVICE BOX

code: 39SKML03000A



Seal (1x)



Washer (6x)



Screw (3x)



Instructions



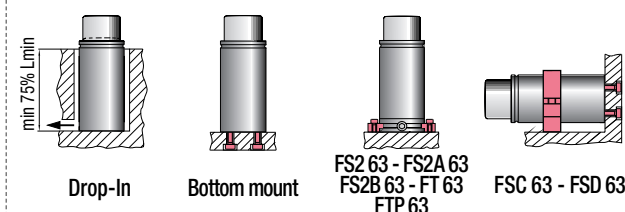
Sostituire ogni 1.000.000 di cicli. Remplacez à chaque million de cycles. Reemplazar cada 1 millón de ciclos. Nach 1 Mio. Hübe austauschen. Substituir a cada 1 milhão de ciclos.

HOW TO ORDER

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INSTALLATION GUIDELINE

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SW

Il nuovo codice sarà fornito solo ad esaurimento del vecchio
 The new code will be supplied only when the old will be out of stock

ACTIVE SAFETY



OSAS

Der neue Kode wird nur angegeben, wenn der alte nicht mehr lieferbar ist



USAS

Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé



OPAS

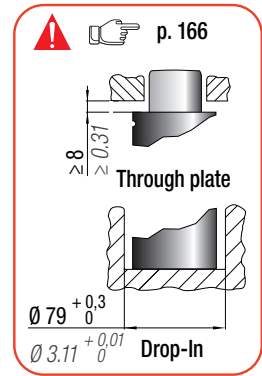
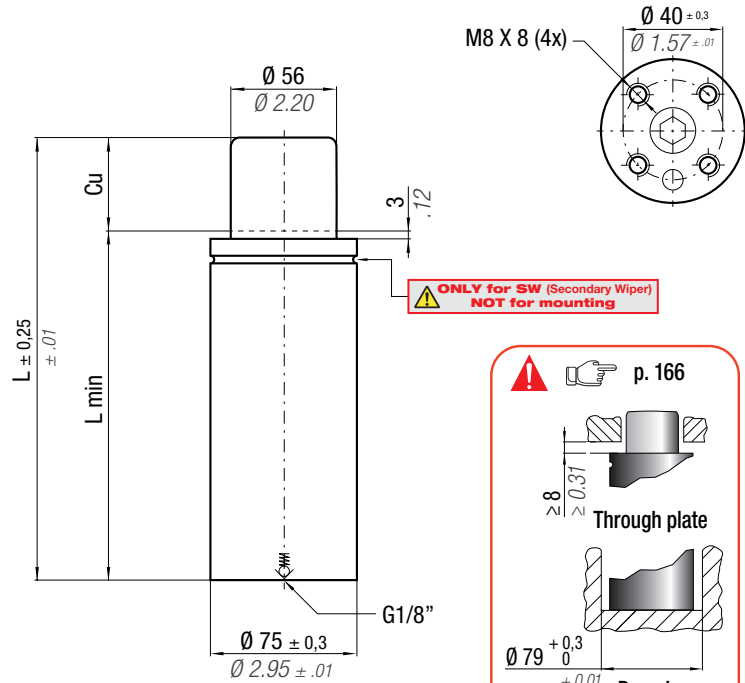
El nuevo código será suministrado sólo cuando se agoten las existencias del antiguo

O novo código irá ser fornecido apenas quando o antigo esgotar stock



* F_{1i} = Isothermal end force at 100% Cu
 p. 16

** F_{1p} = Polytrophic end force at 100% Cu
 p. 16

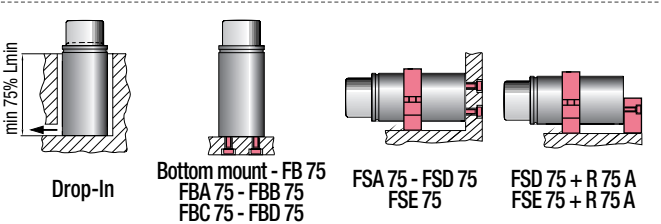
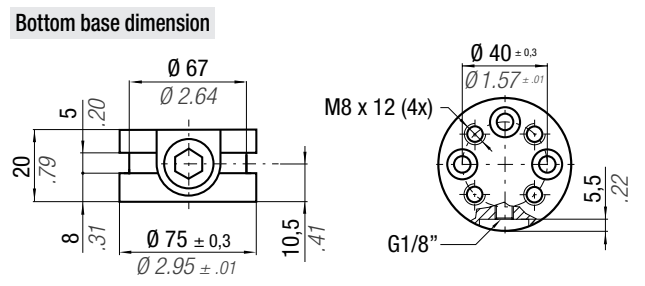


N ₂		0 - 80 °C 32 - 176 °F	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 24,63 cm ² 3.817 in ²	SPM ~ 30 - 70 (at 20°C)	Max Speed 1,6 m/s 62.9 in/s	Maintenance kit 39BMMLO4700C
CODE	NEW	Cu	L	L min	F ₀	F _{1i} *	F _{1p} **	V ₀	PED
PHASING OUT from 05/2019		mm inch	mm inch	mm inch	Initial force daN lb	End force * daN lb	End force ** daN lb	cm ³ in ³	~Kg ~lb
ML 4700 - 015 - C	ML 4700 - 015 - D	15 0.59	100 3.94	85 3.35	4925 11071	6982 15697	7878 17711	158 9.64	1,72 3.79
ML 4700 - 025 - C	ML 4700 - 025 - D	25 0.98	120 4.72	95 3.74	± 5%	7883 17721	9119 20500	204 12.46	1,90 4.19
ML 4700 - 038 - C	ML 4700 - 038 - D	38 1.50	150 5.91	112 4.41	200 bar 2900 psi	8462 19023	9933 22330	277 16.88	2,17 4.78
ML 4700 - 050 - C	ML 4700 - 050 - D	50 1.97	180 7.09	130 5.12		8683 19520	10247 23035	351 21.39	2,44 5.38
ML 4700 - 063 - C	ML 4700 - 063 - D	63 2.48	210 8.27	147 5.79		8963 20150	10647 23936	423 25.82	2,72 6.00
ML 4700 - 080 - C	ML 4700 - 080 - D	80 3.15	250 9.84	170 6.69	+20 °C +68 °F	9191 20663	10975 24673	520 31.74	3,08 6.79

KIT FOR LINKING

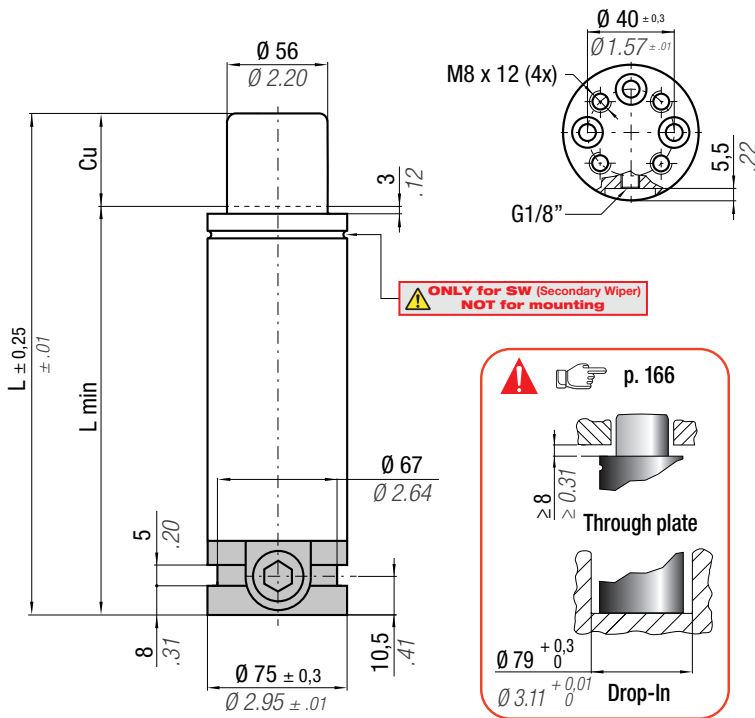


Sostituire ogni 1.000.000 di cicli. Replace every 1 million cycles. Nach 1 Mio. Hübe austauschen. Remplacez à chaque million de cycles. Reemplazar cada 1 millón de ciclos. Substituir a cada 1 milhão de ciclos.



HOW TO ORDER
 p. 167

INSTALLATION GUIDELINE
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Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird nur angegeben, wenn der alte nicht mehr lieferbar ist

Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

El nuevo código será suministrado sólo cuando se agoten las existencias del antiguo

O novo código irá ser fornecido apenas quando o antigo esgotar stock

* $F_{1i} =$

Isothermal end force at 100% Cu



p. 16



** $F_{1p} =$

Polytrophic end force at 100% Cu



SW

ACTIVE SAFETY



OSAS



USAS



OPAS

N ₂		0 - 80 °C 32 - 176 °F	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 24,63 cm ² 3.817 in ²	SPM ~ 30 - 70 (at 20°C)	Max Speed 1,6 m/s 62.9 in/s	Maintenance kit 39BMMML04700C	
CODE	NEW	Cu	L	L min	F ₀	F _{1i} *	F _{1p} **	V ₀		
PHASING OUT from 05/2019		mm inch	mm inch	mm inch	Initial force daN lb	End force * daN lb	End force ** daN lb	cm ³ in ³	~Kg ~lb	2014/68/EU
ML4700-015-C-N	ML4700-015-D-N	15 0.59	120 4.72	105 4.13	4925 11071	6982 15697	7878 17711	158 9.64	2,34 5.16	✓
ML4700-025-C-N	ML4700-025-D-N	25 0.98	140 5.51	115 4.53	± 5%	7883 17721	9119 20500	204 12.46	2,51 5.53	✓
ML4700-038-C-N	ML4700-038-D-N	38 1.50	170 6.69	132 5.20	200 bar 2900 psi	8462 19023	9933 22330	277 16.88	2,75 6.06	✓
ML4700-050-C-N	ML4700-050-D-N	50 1.97	200 7.87	150 5.91		8683 19520	10247 23035	351 21.39	3,06 6.75	✓
ML4700-063-C-N	ML4700-063-D-N	63 2.48	230 9.06	167 6.57		8963 20150	10647 23936	423 25.82	3,33 7.34	✓
ML4700-080-C-N	ML4700-080-D-N	80 3.15	270 10.63	190 7.48	+20 °C +68 °F	9191 20663	10975 24673	520 31.74	3,70 8.16	✓

SERVICE BOX

code: 39SKML04700A



Seal (1x)



Washer (6x)



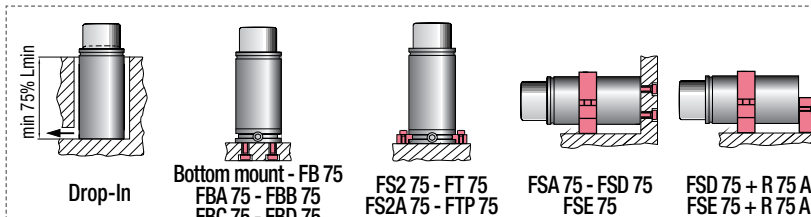
Screw (3x)



Instructions



Sostituire ogni 1.000.000 di cicli. REMPLACER À CHAQUE MILLION DE CYCLES.
 Replace every 1 million cycles. REEMPLAZAR CADA 1 MILLÓN DE CICLOS.
 Nach 1 Mio. Hübe austauschen. Substituir a cada 1 milhão de ciclos.



HOW TO ORDER

p. 167

INSTALLATION GUIDELINE

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SW

ACTIVE SAFETY



OSAS



USAS



OPAS

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird nur angegeben, wenn der alte nicht mehr lieferbar ist

Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

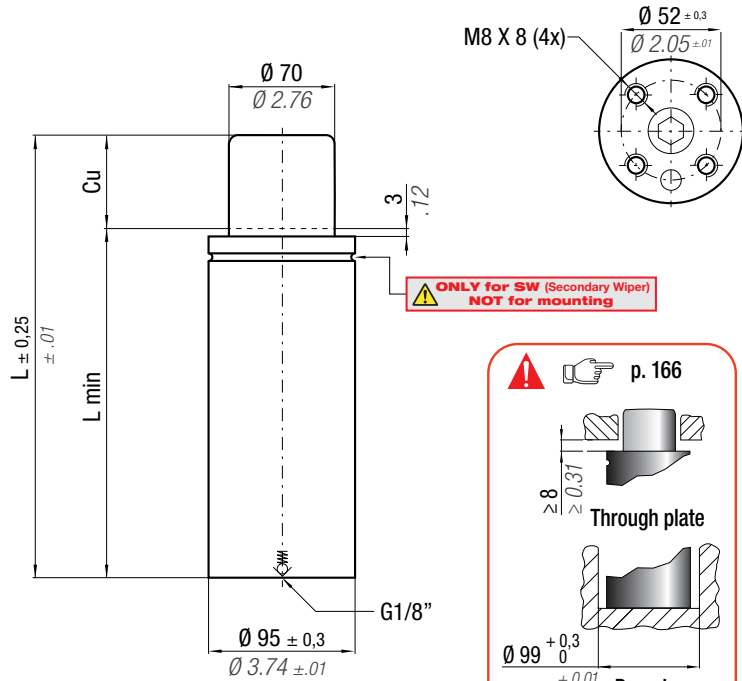
El nuevo código será suministrado sólo cuando se agoten las existencias del antiguo

O novo código irá ser fornecido apenas quando o antigo esgotar stock

easu MANIFOLD p. 247

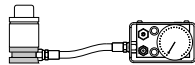
* F_{1i} = Isothermal end force at 100% Cu p. 16

** F_{1p} = Polytrophic end force at 100% Cu



N ₂	0 - 80 °C 32 - 176 °F	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 38,48 cm ² 5.964 in ²	SPM ~ 20 - 60 (at 20°C)	Max Speed 1,6 m/s 62.9 in/s	Maintenance kit 39BMMML07500C	
CODE	NEW	Cu	L	L min	F ₀	F _{1i} *	F _{1p} **	V ₀	
PHASING OUT from 05/2019		mm inch	mm inch	mm inch	Initial force	End force *	End force **	cm ³ in ³	~Kg ~lb
ML 7500 - 015 - C	ML 7500 - 015 - D	15 0.59	115 4.53	100 3.94	7700 17310	10242 23024	11406 25641	295 17.98	3,30 7.28
ML 7500 - 025 - C	ML 7500 - 025 - D	25 0.98	135 5.31	110 4.33	± 5%	11442 25722	13037 29308	368 22.48	3,58 7.89
ML 7500 - 038 - C	ML 7500 - 038 - D	38 1.50	165 6.50	127 5.00	200 bar	12326 27709	14261 32060	484 29.56	4,01 8.84
ML 7500 - 050 - C	ML 7500 - 050 - D	50 1.97	190 7.48	140 5.51	2900 psi	13083 29411	15324 34449	578 35.27	4,36 9.61
ML 7500 - 063 - C	ML 7500 - 063 - D	63 2.48	220 8.66	157 6.18		13519 30391	15942 35838	694 42.34	4,75 10.47
ML 7500 - 080 - C	ML 7500 - 080 - D	80 3.15	260 10.24	180 7.09	+20 °C +68 °F	13883 31210	16462 37007	849 51.82	5,36 11.82

KIT FOR LINKING



code: 39FML07500B



Seal (1x)



Washer (6x)



Screw (3x)



Bottom base (1x)



Valve (1x)

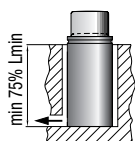
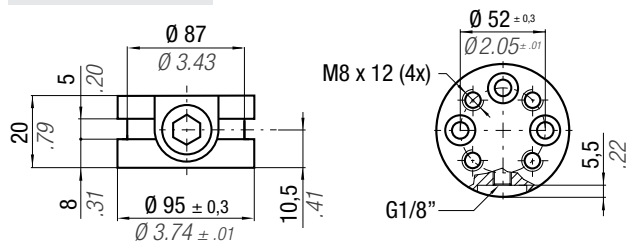


Instructions

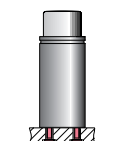


Sostituire ogni 1.000.000 di cicli. Replace every 1 million cycles. Nach 1 Mio. Hübe austauschen. Reemplazar a cada 1 millón de ciclos. Substituir a cada 1 milhão de ciclos.

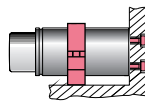
Bottom base dimension



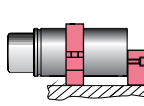
Drop-In



Bottom mount



FSA 95 - FSD 95
FSE 95



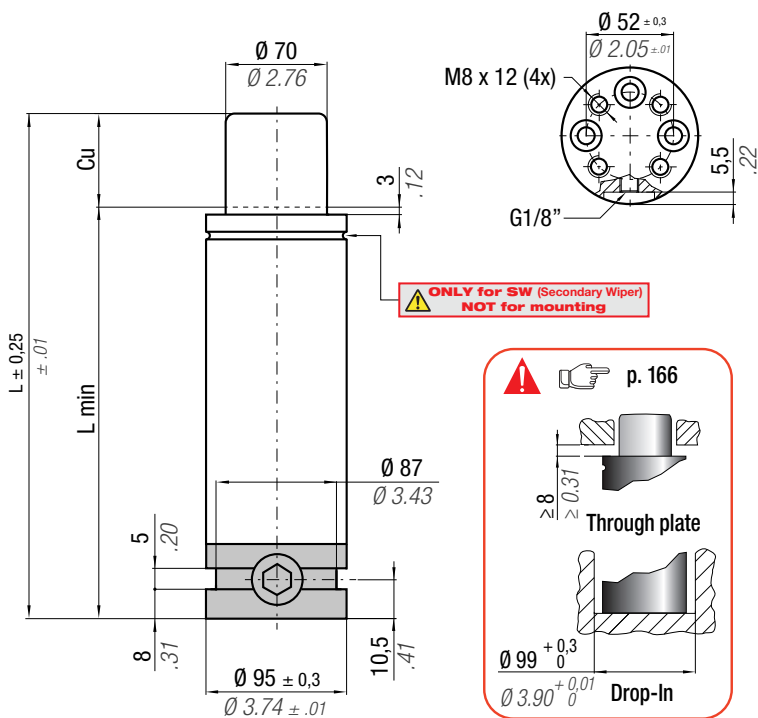
FSD 95 + R 95 A
FSE 95 + R 95 A

HOW TO ORDER

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INSTALLATION GUIDELINE

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Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird nur angegeben, wenn der alte nicht mehr lieferbar ist

Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

El nuevo código será suministrado sólo cuando se agoten las existencias del antiguo

O novo código irá ser fornecido apenas quando o antigo esgotar stock

* $F_{1i} =$

Isothermal end force at 100% Cu



p. 16



** $F_{1p} =$

Polytrophic end force at 100% Cu



SW

ACTIVE SAFETY



OSAS



USAS



OPAS

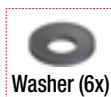
N ₂		0 - 80 °C 32 - 176 °F	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 38,48 cm ² 5.964 in ²	SPM ~ 20 - 60 (at 20°C)	Max Speed 1,6 m/s 62.9 in/s	Maintenance kit 39BMMML07500C	
CODE	NEW	Cu	L	L min	F ₀	F _{1i} *	F _{1p} **	V ₀		PED
PHASING OUT from 05/2019		mm inch	mm inch	mm inch	Initial force daN lb	End force * daN lb	End force ** daN lb	cm ³ in ³	~Kg ~lb	2014/68/EU
ML7500-015-C-N	ML7500-015-D-N	15 0.59	135 5.31	120 4.72	7700 17310	10242 23024	11406 25641	295 17.98	4,32 9.52	✓
ML7500-025-C-N	ML7500-025-D-N	25 0.98	155 6.10	130 5.12	± 5%	11442 25722	13037 29308	368 22.48	4,60 10.14	✓
ML7500-038-C-N	ML7500-038-D-N	38 1.50	185 7.28	147 5.79	200 bar 2900 psi	12326 27709	14261 32060	484 29.56	5,03 11.09	✓
ML7500-050-C-N	ML7500-050-D-N	50 1.97	210 8.27	160 6.30		13083 29411	15324 34449	578 35.27	5,38 11.86	✓
ML7500-063-C-N	ML7500-063-D-N	63 2.48	240 9.45	177 6.97		13519 30391	15942 35838	694 42.34	5,81 12.81	✓
ML7500-080-C-N	ML7500-080-D-N	80 3.15	280 11.02	200 7.87	+20 °C +68 °F	13883 31210	16462 37007	849 51.82	6,39 14.09	✓

SERVICE BOX

code: 39SKML04700A



Seal (1x)



Washer (6x)



Screw (3x)



Instructions



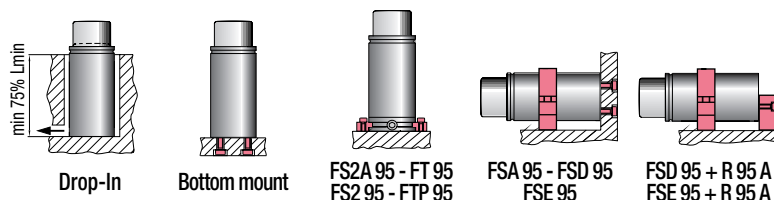
Sostituire ogni 1.000.000 di cicli. Replace every 1 million cycles. Nach 1 Mio. Hübe austauschen. Reemplazar a cada 1 millón de ciclos. Reemplazar a cada 1 milhão de ciclos.

HOW TO ORDER

p. 167

INSTALLATION GUIDELINE

p. 205





SW

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

ACTIVE SAFETY

Der neue Kode wird nur angegeben, wenn der alte nicht mehr lieferbar ist



OSAS

Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

El nuevo código será suministrado sólo cuando se agoten las existencias del antiguo



USAS

O novo código irá ser fornecido apenas quando o antigo esgotar stock

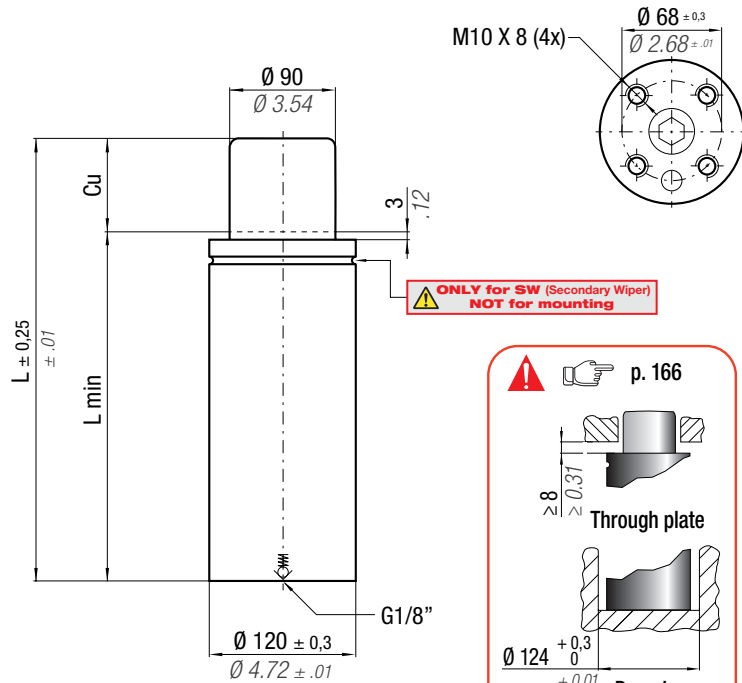


OPAS

easu MANIFOLD p. 247

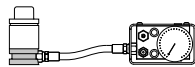
* F_{1i} = Isothermal end force at 100% Cu p. 16

** F_{1p} = Polytrophic end force at 100% Cu



N ₂	0 - 80 °C 32 - 176 °F	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 63,62 cm ² 9.861 in ²	SPM ~ 20 - 50 (at 20°C)	Max Speed 1,6 m/s 62.9 in/s	Maintenance kit 39BMML12000C	
CODE	NEW	Cu	L	L min	F₀	F_{1i} *	F_{1p} **	V₀	PED
PHASING OUT from 05/2019		mm inch	mm inch	mm inch	Initial force daN lb	End force * daN lb	End force ** daN lb	cm ³ in ³	~Kg ~lb 2014/68/EU
ML 12000 - 015 - C:ML 12000 - 015 - D		15 0.59	115 4.53	100 3.94	12720 28595	17910 40264	20179 45364	415 25.35	5,82 12,83 ✓
ML 12000 - 025 - C:ML 12000 - 025 - D		25 0.98	135 5.31	110 4.33	± 5%	20260 45546	23413 52635	532 32.47	6,29 13,87 ✓
ML 12000 - 038 - C:ML 12000 - 038 - D		38 1.50	165 6.50	127 5.00	200 bar 2900 psi	21844 49107	25639 57638	715 43.64	7,01 15,45 ✓
ML 12000 - 050 - C:ML 12000 - 050 - D		50 1.97	195 7.68	145 5.71		22489 50558	26555 59699	902 55.05	7,74 17,06 ✓
ML 12000 - 063 - C:ML 12000 - 063 - D		63 2.48	225 8.86	162 6.38		23275 52324	27678 62222	1085 66.22	8,46 18,65 ✓
ML 12000 - 080 - C:ML 12000 - 080 - D		80 3.15	265 10.43	185 7.28	+20 °C +68 °F	23928 53791	28617 64333	1331 81.19	9,43 20,79 ✓

KIT FOR LINKING



code: 39FML12000B



Seal (1x)



Washer (8x)



Screw (4x)



Bottom base (1x)



Valve (1x)

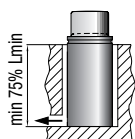
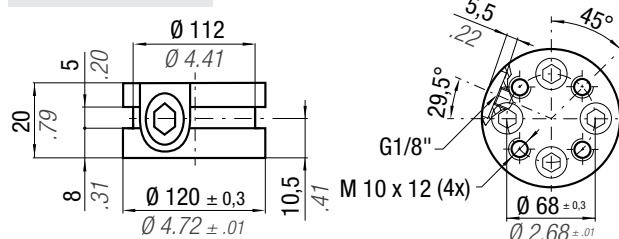


Instructions



Sostituire ogni 1.000.000 di cicli. Replace every 1 million cycles. Nach 1 Mio. Hübe austauschen. Reemplazar a cada 1 millón de ciclos. Substituir a cada 1 milhão de ciclos.

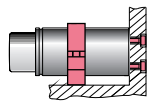
Bottom base dimension



Drop-In



Bottom mount



FSA 120 - FSD 120

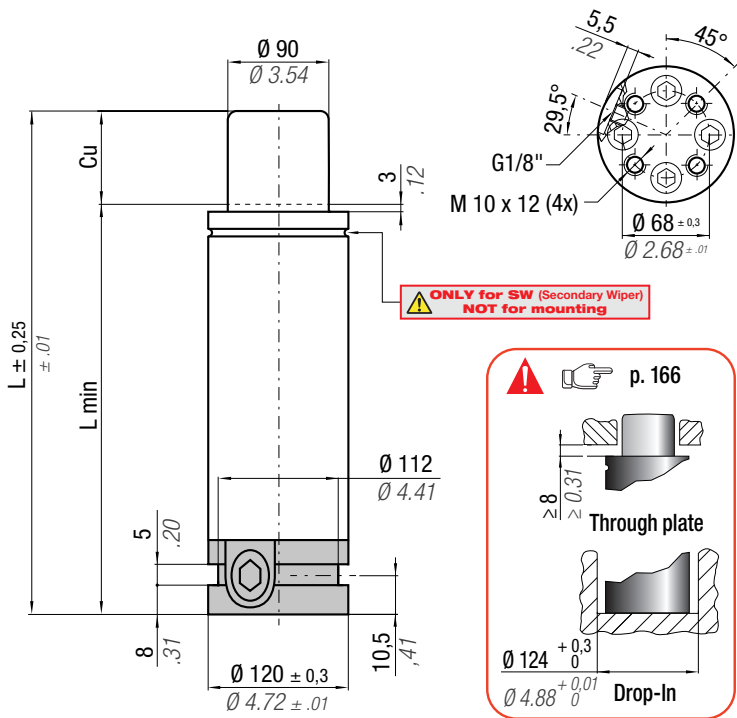


HOW TO ORDER

p. 167

INSTALLATION GUIDELINE

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Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird nur angegeben, wenn der alte nicht mehr lieferbar ist

Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

El nuevo código será suministrado sólo cuando se agoten las existencias del antiguo

O novo código irá ser fornecido apenas quando o antigo esgotar stock

* $F_{1i} =$

Isothermal end force at 100% Cu



p. 16



** $F_{1p} =$

Polytrophic end force at 100% Cu



SW

ACTIVE SAFETY



OSAS



USAS



OPAS

N ₂		0 - 80 °C 32 - 176 °F	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 63,62 cm ² 9,861 in ²	SPM ~ 20 - 50 (at 20°C)	Max Speed 1,6 m/s 62,9 in/s	Maintenance kit 39BMMML12000C	
CODE	NEW	Cu	L	L min	F ₀	F _{1i} *	F _{1p} **	V ₀		PED
PHASING OUT from 05/2019		mm inch	mm inch	mm inch	Initial force daN lb	End force * daN lb	End force ** daN lb	cm ³ in ³	~Kg ~lb	2014/68/EU
ML12000-015-C-N	ML12000-015-D-N	15 0.59	135 5.31	120 4.72	12720 28595	17910 40264	20179 45364	415 25.35	7,45 16.42	✓
ML12000-025-C-N	ML12000-025-D-N	25 0.98	155 6.10	130 5.12	± 5%	20260 45546	23413 52635	532 32.47	7,92 17.46	✓
ML12000-038-C-N	ML12000-038-D-N	38 1.50	185 7.28	147 5.79	200 bar 2900 psi	21844 49107	25639 57638	715 43.64	8,64 19.05	✓
ML12000-050-C-N	ML12000-050-D-N	50 1.97	215 8.46	165 6.50		22489 50558	26555 59699	902 55.05	9,37 20.66	✓
ML12000-063-C-N	ML12000-063-D-N	63 2.48	245 9.65	182 7.17		23275 52324	27678 62222	1085 66.22	10,09 22.24	✓
ML12000-080-C-N	ML12000-080-D-N	80 3.15	285 11.22	205 8.07	+20 °C +68 °F	23928 53791	28617 64333	1331 81.19	11,06 24.38	✓

SERVICE BOX

code: 39SKML12000A



Seal (1x)



Washer (8x)



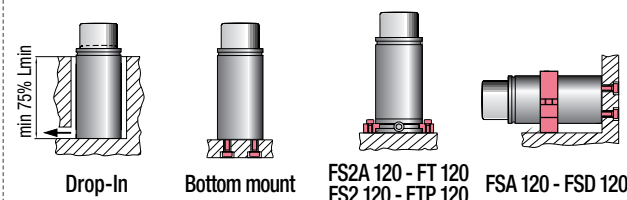
Screw (4x)



Instructions



Sostituire ogni 1.000.000 di cicli. REMPLACEZ À CHAQUE MILLION DE CYCLES.
 Replace every 1 million cycles. REEMPLAZAR CADA 1 MILLÓN DE CICLOS.
 Nach 1 Mio. Hübe austauschen. Substituir a cada 1 milhão de ciclos.



HOW TO ORDER

Hand icon p. 167

INSTALLATION GUIDELINE

Hand icon p. 205