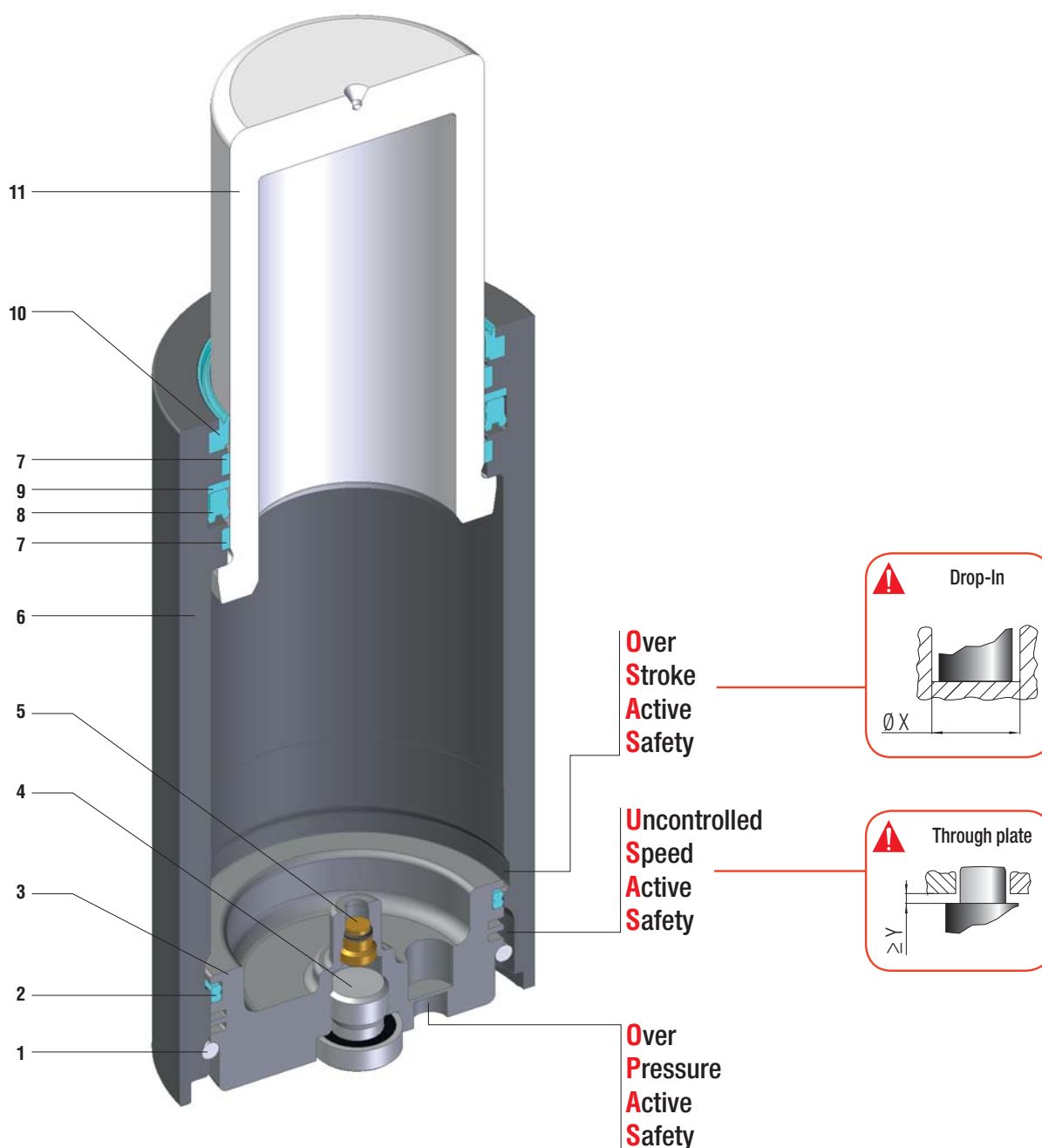




Massima forza, tenuta stelo - Maximum force, rod sealed - Maximale Kraft, Kolbenstange dichtung
 Forces maximale, joint de tige - Máxima fuerza, estanqueidad vástago - Força máxima, estanquidade na haste

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		

RANGE CHART

Model	Body Ø		Stroke Cu		Initial force F0					
	mm	inch	mm	inch	daN	lb	OSAS	USAS	OPAS	SKUDO
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	11071	✓	✓	✓	-
ML 3000 N	63	2.48	15 - 80	0.59 - 3.15	3180	11071	✓	✓	✓	-
ML 4700	75	2.95	15 - 80	0.59 - 3.15	4925	11071	✓	✓	✓	-
ML 4700 N	75	2.95	15 - 80	0.59 - 3.15	4925	11071	✓	✓	✓	-
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	✓	✓	✓	-



HOW TO ORDER

Series

Model

Stroke

Revision code

ML1800-050-C - N
- E

IT Codice cilindro autonomo
EN Self-contained cylinder code
DE Kode des eingeständigen Gdf.
FR Code du cylindre autonome
ES Código del cilindro autónomo
PT Código do cilindro autónomo

IT Collegabile con tubi, fornito scarico e senza valvola unidirezionale, L+20 mm
EN Linkable with hoses, supplied without pressure and oneway valve, L+20 mm
DE Anschlussfähig mit Leitungen, geliefert ohne Druck und RückschlagVentil, L+20 mm
FR Connectable avec tubes, fourni sans pression ni valve unidirectionnelle, L+20 mm
ES Connectable con tubos, suministrado sin presión y sin válvula unidireccional, L+20 mm
PT Acompláveis com tubos, fornecidos sem pressão e sem válvula unidireccional, L+20 mm

IT Collegabile EASY MANIFOLD, fornito scarico senza valvola + guarnizione di collegamento
EN Linkable EASY MANIFOLD, supplied without pressure and valve + connecting seal
DE Anschlussfähig EASY MANIFOLD, geliefert ohne Druck und ohne Ventil + Verbindungsichtung
FR Connectable EASY MANIFOLD, fourni sans pression ni valve + joint de connexion
ES Connectable EASY MANIFOLD, suministrado sin presión y sin válvula + junta de conexión
PT Acompláveis EASY MANIFOLD, fornecidos sem pressão e sem válvula + vedantes de conexão

ACTIVE SAFETY



OSAS



USAS

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 geliefert nur wenn der alte nicht mehr im Lager ist

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

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

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

* $F_{1i} =$

Isothermal
end force
at 100% Cu

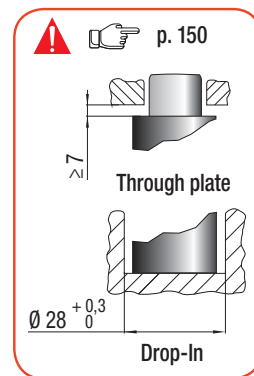
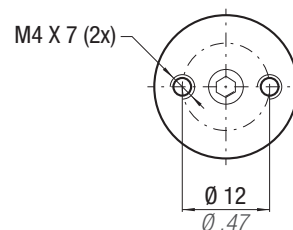
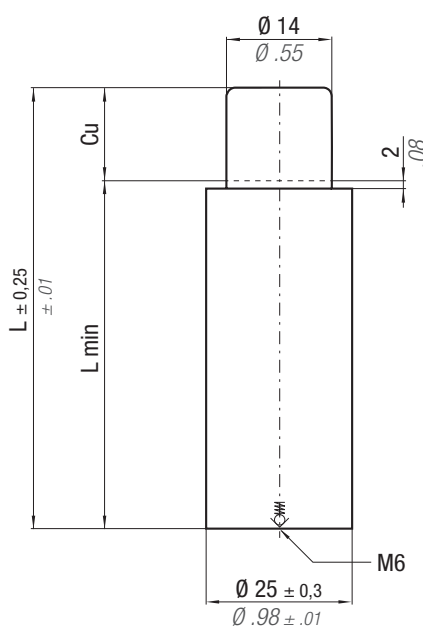


p. 16

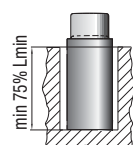


** $F_{1p} =$

Polytropic
end force
at 100% Cu



 N2		°F 32 176 °C 0 -80	ΔP		P max		P min		S		SPM		Max Speed		Maintenance kit						
			± 0,33 %/°C		200 bar 2900 psi		20 bar 290 psi		1,54 cm² 0.239 in²		~ 40 - 80 (at 20°C)		1,6 m/s		Disposable						
CODE		NEW		Cu		L		L min		F0		F1i *		F1p **		Vo					
PHASING OUT from 04/2013				mm	inch	mm	inch	mm	inch	Initial force		End force		End force		cm³ in³		~Kg ~lb		2014/68/EU	
ML 300 - 010 - B		ML 300 - 010 - C		10	0.39	75	2.95	65	2.56	310 697 ± 5%		424 954		476 1070		7,0 0.43		0,17 0.37		✓	
ML 300 - 015 - B		ML 300 - 015 - C		15	0.59	85	3.35	70	2.76			460 1034		524 1178		9,0 0.55		0,18 0.40		✓	
ML 300 - 025 - B		ML 300 - 025 - C		25	0.98	105	4.13	80	3.15			509 1143		592 1331		12,0 0.73		0,21 0.46		✓	
ML 300 - 038 - B		ML 300 - 038 - C		38	1.50	130	5.12	92	3.62	200 bar 2900 psi		555 1248		658 1479		16,0 0.98		0,24 0.53		✓	
ML 300 - 050 - B		ML 300 - 050 - C		50	1.97	155	6.10	105	4.13			572 1286		682 1533		20,0 1.22		0,27 0.60		✓	
ML 300 - 063 - B		ML 300 - 063 - C		63	2.48	185	7.28	122	4.80			569 1279		678 1524		26,0 1.59		0,31 0.68		✓	
ML 300 - 080 - B		ML 300 - 080 - C		80	3.15	220	8.66	140	5.51	+20 °C +68 °F		584 1313		699 1571		32,0 1.95		0,35 0.77		✓	



Drop-In

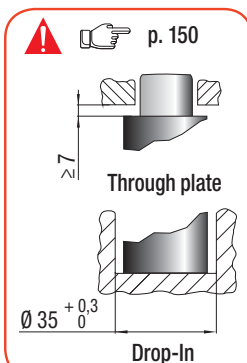
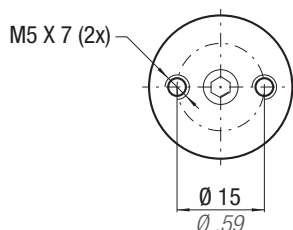
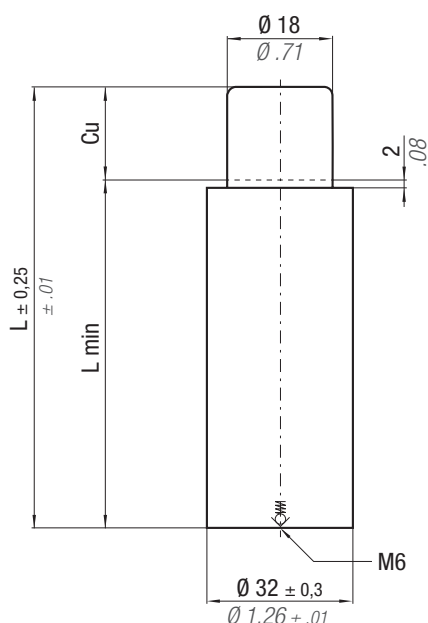


Bottom mount



HOW TO ORDER

(10 pcs) ML300-050-C



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 geliefert nur wenn der alte nicht mehr im Lager ist

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

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

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

ACTIVE SAFETY



OSAS



USAS

* $F_{1i} =$

Isothermal end force at 100% Cu



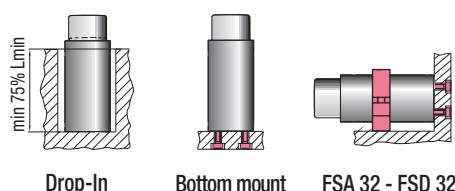
p. 16

** $F_{1p} =$

Polytropic end force at 100% Cu



 N2		°F 32 176	°C 0 80	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 2,54 cm² 0.394 in²	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit Disposable									
CODE PHASING OUT from 04/2013	 NEW	Cu		L	L min	F0 Initial force		F1i * End force *		F1p ** End force **		V0		 PED 2014/68/EU					
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb		
ML 500 - 010 - B	ML 500 - 010 - C	10	0.39	75	2.95	65	2.56	510 ± 5%	1147	708	1592	796	1789	11,0	0.67	0,28	0.62	✓	
ML 500 - 015 - B	ML 500 - 015 - C	15	0.59	85	3.35	70	2.76			763	1715	871	1958	14,0	0.85	0,30	0.66	✓	
ML 500 - 025 - B	ML 500 - 025 - C	25	0.98	105	4.13	80	3.15			835	1877	971	2183	20,0	1.22	0,34	0.75	✓	
ML 500 - 038 - B	ML 500 - 038 - C	38	1.50	130	5.12	92	3.62	200 bar 2900 psi		902	2028	1065	2394	27,0	1.65	0,39	0.86	✓	
ML 500 - 050 - B	ML 500 - 050 - C	50	1.97	155	6.10	105	4.13			923	2075	1095	2462	35,0	2.14	0,43	0.95	✓	
ML 500 - 063 - B	ML 500 - 063 - C	63	2.48	190	7.48	127	5.00			881	1981	1035	2327	47,0	2.87	0,51	1.12	✓	
ML 500 - 080 - B	ML 500 - 080 - C	80	3.15	225	8.86	145	5.71	+20 °C +68 °F		904	2032	1069	2403	57,0	3.48	0,57	1.26	✓	



 **HOW TO ORDER**

(10 pcs) ML500-050-C

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 geliefert nur wenn der alte nicht mehr im Lager ist

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

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

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

* $F_{1i} =$

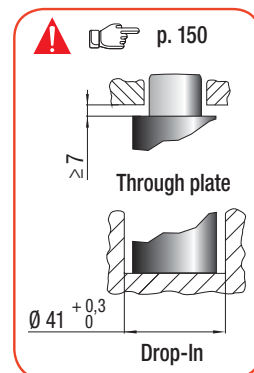
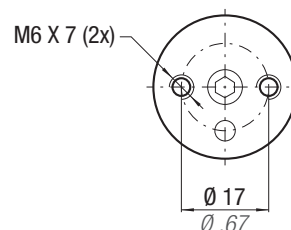
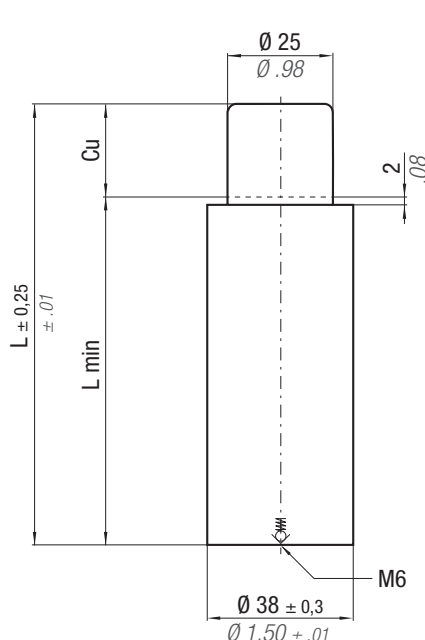
Isothermal
end force
at 100% Cu



p. 16

** $F_{1p} =$

Polytropic
end force
at 100% Cu

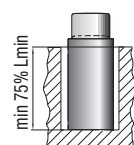
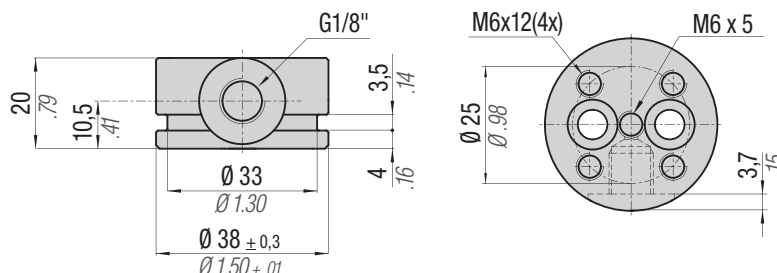


 N2		°F 32 176	 °C 0 80	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 4,91 cm² 0.761 in²	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMML01000C								
CODE PHASING OUT from 04/2013	 NEW	Cu		L		L min		F0 Initial force		F1i * End force		F1p ** End force		Vo			 PED 2014/68/EU	
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	
ML 1000 - 010 - B	ML 1000 - 010 - C	10	0.39	75	2.95	65	2.56	980 ± 5%	2203	1371	3081	1542	3467	22,0	1.34	0,37	0.82	✓
ML 1000 - 015 - B	ML 1000 - 015 - C	15	0.59	85	3.35	70	2.76			1500	3372	1719	3864	27,0	1.65	0,39	0.86	✓
ML 1000 - 025 - B	ML 1000 - 025 - C	25	0.98	105	4.13	80	3.15			1687	3793	1981	4453	36,0	2.20	0,45	0.99	✓
ML 1000 - 038 - B	ML 1000 - 038 - C	38	1.50	135	5.31	97	3.82	200 bar 2900 psi	+20 °C +68 °F	1768	3974	2095	4710	52,0	3.17	0,53	1.17	✓
ML 1000 - 050 - B	ML 1000 - 050 - C	50	1.97	160	6.30	110	4.33			1854	4169	2220	4991	64,0	3.90	0,60	1.32	✓
ML 1000 - 063 - B	ML 1000 - 063 - C	63	2.48	205	8.07	142	5.59			1708	3839	2010	4519	90,0	5.49	0,73	1.61	✓
ML 1000 - 080 - B	ML 1000 - 080 - C	80	3.15	240	9.45	160	6.30			1790	4024	2127	4782	107,0	6.53	0.82	1.81	✓

FML 1000

code: 39FML01000B

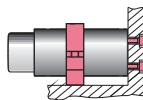
Kit speciale per trasformare cilindri autonomi
Special kit to convert self-contained cylinders
Spezial-Set zum Umbau eigenständiger Zylinder
Kit spécial pour transformer les cylindres autonomes
Kit especial para transformar cilindros autónomos
Kit especial para transformar cilindros autónomos



Drop-In



Bottom mount

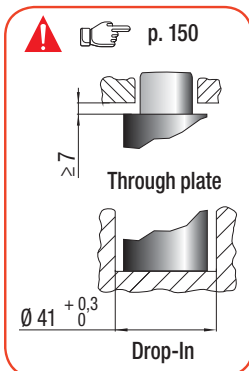
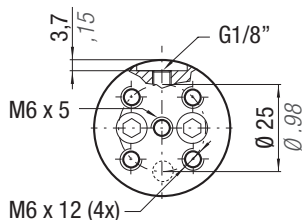
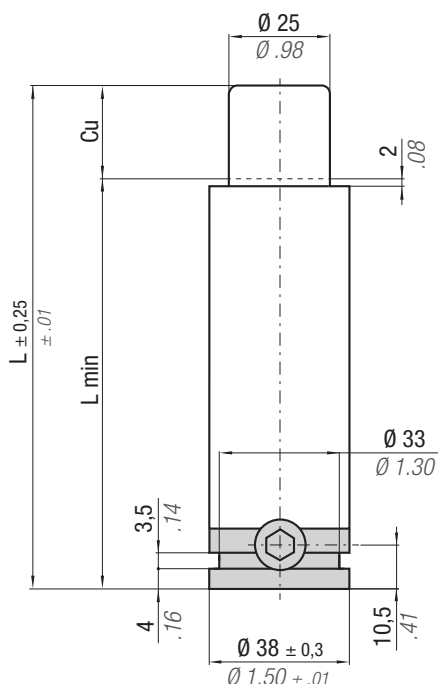


FSA 38 - FSD 38



HOW TO ORDER

(10 pcs) ML1000-050-C



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 geliefert nur wenn der alte nicht mehr im Lager ist

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

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

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

ACTIVE SAFETY



OSAS



USAS



OPAS

* F_{1i} =

Isothermal end force at 100% Cu



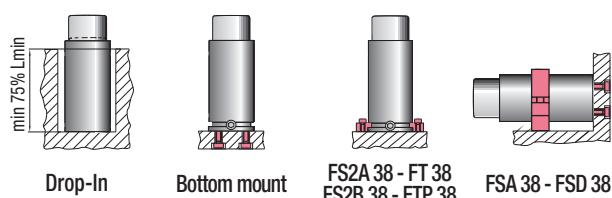
p. 16

** F_{1p} =

Polytropic end force at 100% Cu



 N2		°F 32 176 °C 0 80	ΔP ± 0,33 %/°C		P max 200 bar 2900 psi		P min 20 bar 290 psi		S 4,91 cm² 0.761 in²		SPM ~ 40 - 80 (at 20°C)		Max Speed 1,6 m/s		Maintenance kit 39BMML01000C				
CODE PHASING OUT from 04/2013		 NEW		Cu		L		L min		F0 Initial force		F1i * End force *		F1p ** End force **		Vo		 PED 2014/68/EU	
		mm	inch	mm	inch	mm	inch			daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb
ML1000-010-B-N	ML1000-010-C-N	10	0.39	95	3.74	85	3.35	980 ± 5%	2203	200 bar 2900 psi	1371	3081	1542	3467	22,0	1.34	0,52	1.15	✓
ML1000-015-B-N	ML1000-015-C-N	15	0.59	105	4.13	90	3.54				1500	3372	1719	3864	27,0	1.65	0,55	1.21	✓
ML1000-025-B-N	ML1000-025-C-N	25	0.98	125	4.92	100	3.94				1687	3793	1981	4453	36,0	2.20	0,60	1.32	✓
ML1000-038-B-N	ML1000-038-C-N	38	1.50	155	6.10	117	4.61				1768	3974	2095	4710	52,0	3.17	0,68	1.50	✓
ML1000-050-B-N	ML1000-050-C-N	50	1.97	180	7.09	130	5.12				1854	4169	2220	4991	64,0	3.90	0,75	1.65	✓
ML1000-063-B-N	ML1000-063-C-N	63	2.48	225	8.86	162	6.38	+20 °C +68 °F			1708	3839	2010	4519	90,0	5.49	0,88	1.94	✓
ML1000-080-B-N	ML1000-080-C-N	80	3.15	260	10.24	180	7.09				1790	4024	2127	4782	107,0	6.53	0,98	2.16	✓



HOW TO ORDER

(10 pcs) ML1000-050-C-N

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 geliefert nur wenn der alte nicht mehr im Lager ist

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

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

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

easu MANIFOLD p. 211

* F_{1i} =

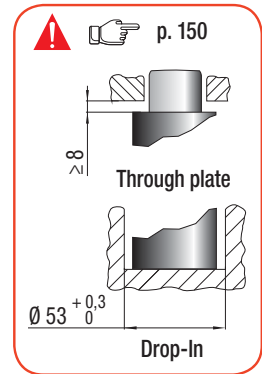
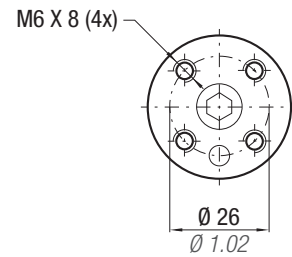
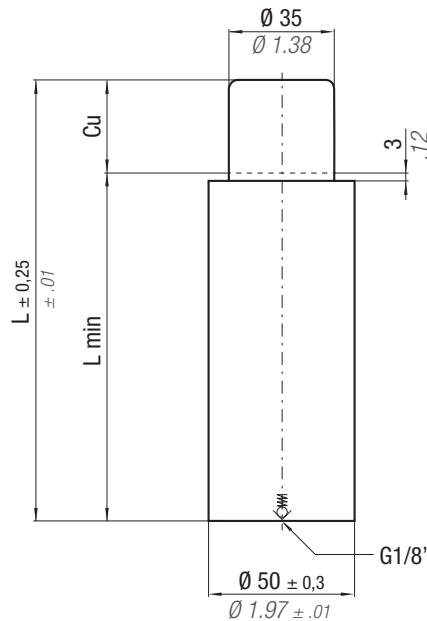
Isothermal end force at 100% Cu



p. 16

** F_{1p} =

Polytrophic end force at 100% Cu

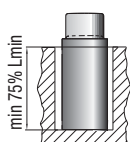
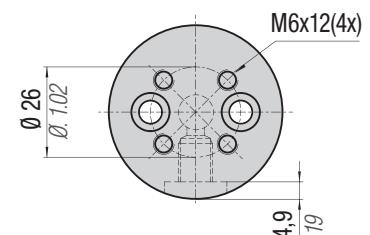
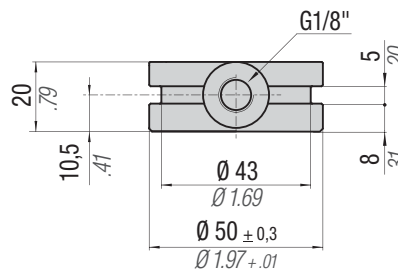


 N2		°F 32 176	 °C 0 80	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 9,62 cm² 1.491 in²	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMML01800C								
CODE PHASING OUT from 04/2013	 NEW	Cu		L		L min		F0 Initial force	F1i * End force *	F1p ** End force **	Vo							
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	2014/68/EU
ML 1800 - 015 - B	ML 1800 - 015 - C	15	0.59	95	3.74	80	3.15	1925	4327	2818	6334	3200	7194	57,0	3.48	0,76	1.68	✓
ML 1800 - 025 - B	ML 1800 - 025 - C	25	0.98	115	4.53	90	3.54	± 5%		3182	7154	3706	8331	75,0	4.58	0,85	1.87	✓
ML 1800 - 038 - B	ML 1800 - 038 - C	38	1.50	150	5.91	112	4.41	200 bar 2900 psi		3257	7321	3811	8567	111,0	6.77	1,01	2.23	✓
ML 1800 - 050 - B	ML 1800 - 050 - C	50	1.97	175	6.89	125	4.92			3451	7758	4087	9188	134,0	8.17	1,12	2.47	✓
ML 1800 - 063 - B	ML 1800 - 063 - C	63	2.48	205	8.07	142	5.59	+20 °C +68 °F		3546	7972	4224	9496	163,0	9.94	1,26	2.78	✓
ML 1800 - 080 - B	ML 1800 - 080 - C	80	3.15	245	9.65	165	6.50			3619	8136	4329	9732	201,0	12.26	1,44	3.17	✓

FML 1800

code: 39FML01800A

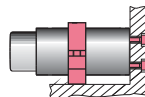
Kit speciale per trasformare cilindri autonomi
Special kit to convert self-contained cylinders
Spezial-Set zum Umbau eigenständiger Zylinder
Kit spécial pour transformer les cylindres autonomes
Kit especial para transformar cilindros autónomos
Kit especial para transformar cilindros autónomos



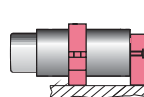
Drop-In



Bottom mount



FSA 50 - FSD 50
FSE 50

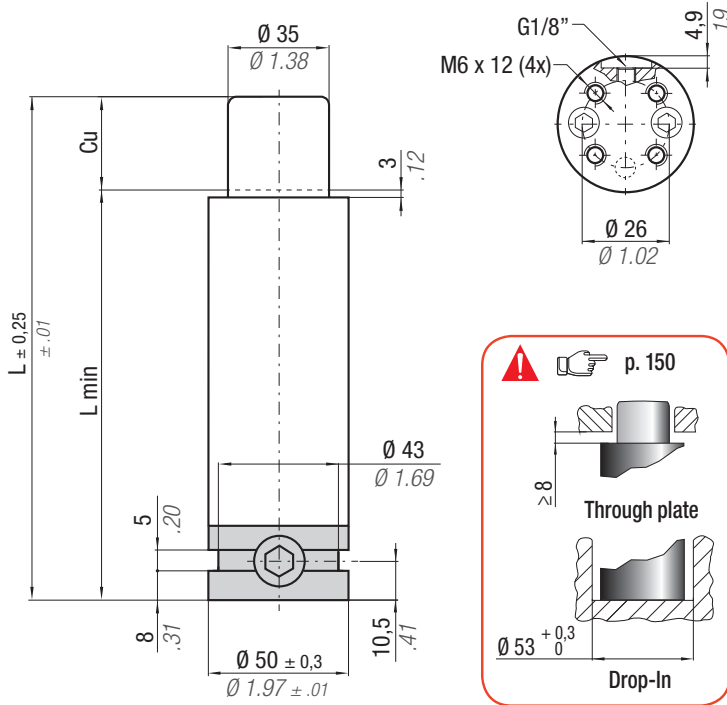


FSD 50 + R 50 A
FSE 50 + R 50 A



HOW TO ORDER

(10 pcs) ML1800-050-C



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 geliefert nur wenn der alte nicht mehr im Lager ist

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

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

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

ACTIVE SAFETY



OSAS



USAS



OPAS

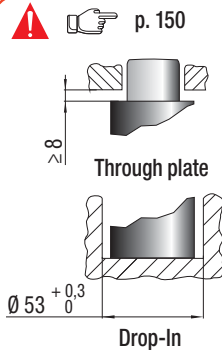
* $F_{1i} =$

Isothermal
end force
at 100% Cu

p. 16

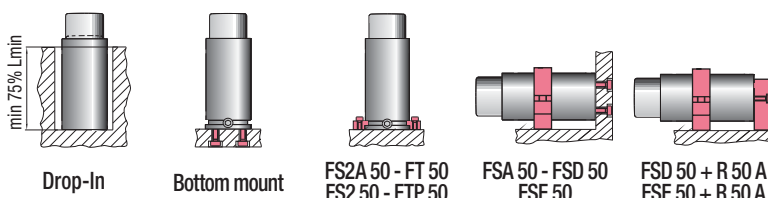
** $F_{1p} =$

Polytropic
end force
at 100% Cu



 N2		°F 32 176	°C 0 80	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 9,62 cm² 1.491 in²	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMMML01800C								
CODE PHASING OUT from 04/2013	 NEW	Cu		L		L min		F0 Initial force	F1i * End force *	F1p ** End force **	Vo							
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	2014/68/EU
ML1800-015-B-N	ML1800-015-C-N	15	0.59	115	4.53	100	3.94	1925	4327	2818	6334	3200	7194	57,0	3.48	1,03	2.27	✓
ML1800-025-B-N	ML1800-025-C-N	25	0.98	135	5.31	110	4.33	± 5%		3182	7154	3706	8331	75,0	4.58	1,12	2.47	✓
ML1800-038-B-N	ML1800-038-C-N	38	1.50	170	6.69	132	5.20	200 bar 2900 psi		3257	7321	3811	8567	111,0	6.77	1,28	2.82	✓
ML1800-050-B-N	ML1800-050-C-N	50	1.97	195	7.68	145	5.71		3451	7758	4087	9188	134,0	8.17	1,39	3.06	✓	
ML1800-063-B-N	ML1800-063-C-N	63	2.48	225	8.86	162	6.38	+20 °C +68 °F		3546	7972	4224	9496	163,0	9.94	1,53	3.37	✓
ML1800-080-B-N	ML1800-080-C-N	80	3.15	265	10.43	185	7.28		3619	8136	4329	9732	201,0	12.26	1,71	3.77	✓	

ML



HOW TO ORDER

(10 pcs) ML1800-050-C-N

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 geliefert nur wenn der alte nicht mehr im Lager ist

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

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

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

easu MANIFOLD p. 211

* F_{1i} =

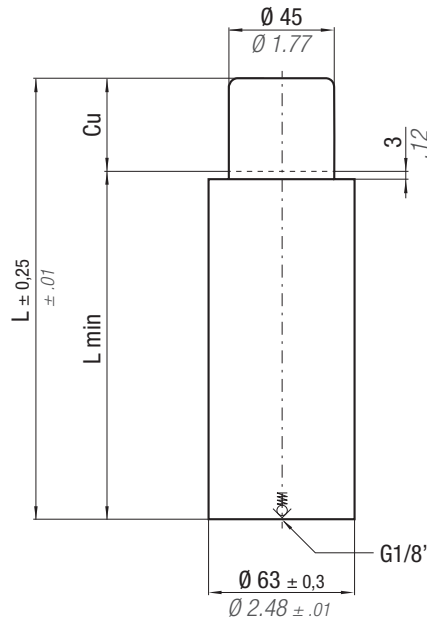
Isothermal end force at 100% Cu



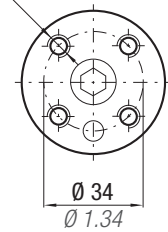
p. 16

** F_{1p} =

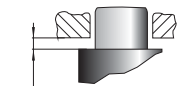
Polytrophic end force at 100% Cu



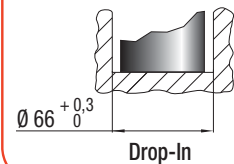
M8 X 8 (4x)



p. 150



Through plate



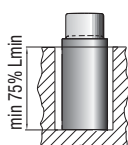
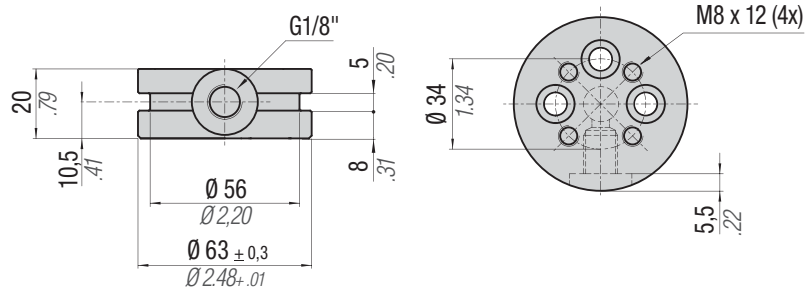
Drop-In

 N2		°F 32 176	 °C 0 80	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 15,90 cm² 2.464 in²	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMML03000B								
CODE PHASING OUT from 04/2013	 NEW	Cu		L		L min		F0 Initial force	F1i * End force *	F1p ** End force **	Vo							
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	cm³	in³	~Kg	~lb	2014/68/EU		
ML 3000 - 015 - B	ML 3000 - 015 - C	15	0.59	100	3.94	85	3.35	3180	7149	4450	10003	5007	11256	106,0	6.47	1,25	2.76	✓
ML 3000 - 025 - B	ML 3000 - 025 - C	25	0.98	120	4.72	95	3.74	± 5%		4996	11231	5757	12942	136,0	8.30	1,38	3.04	✓
ML 3000 - 038 - B	ML 3000 - 038 - C	38	1.50	150	5.91	112	4.41	200 bar		5340	12005	6239	14026	185,0	11.29	1,57	3.46	✓
ML 3000 - 050 - B	ML 3000 - 050 - C	50	1.97	180	7.09	130	5.12	2900 psi		5468	12292	6419	14430	235,0	14.34	1,78	3.92	✓
ML 3000 - 063 - B	ML 3000 - 063 - C	63	2.48	210	8.27	147	5.79			5633	12664	6654	14959	283,0	17.26	1,98	4.37	✓
ML 3000 - 080 - B	ML 3000 - 080 - C	80	3.15	250	9.84	170	6.69	+20 °C +68 °F		5766	12963	6844	15386	349,0	21.29	2,24	4.94	✓

FML 3000

code: 39FML03000A

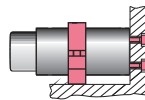
Kit speciale per trasformare cilindri autonomi
Special kit to convert self-contained cylinders
Spezial-Set zum Umbau eigenständiger Zylinder
Kit spécial pour transformer les cylindres autonomes
Kit especial para transformar cilindros autónomos
Kit especial para transformar cilindros autónomos



Drop-In



Bottom mount

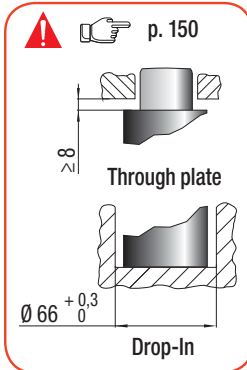
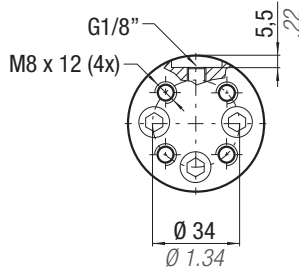
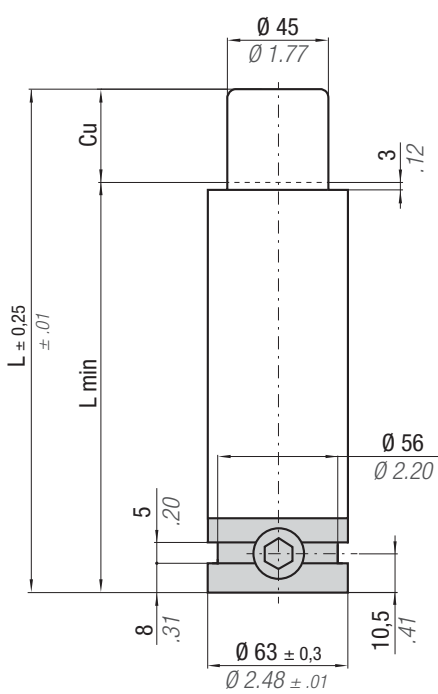


FSC 63 - FSD 63



HOW TO ORDER

(10 pcs) ML3000-050-C



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 geliefert nur wenn der alte nicht mehr im Lager ist

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

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

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

ACTIVE SAFETY



OSAS



USAS



OPAS

* $F_{1i} =$

Isothermal end force at 100% Cu



p. 16

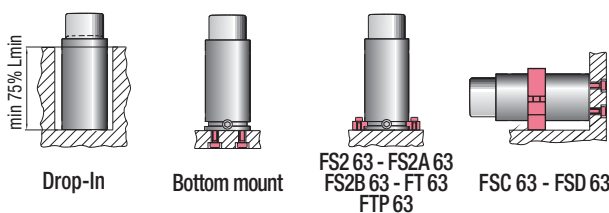
** $F_{1p} =$

Polytrophic end force at 100% Cu



 N2		°F 32 176	°C 0 80	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 15,90 cm² 2.464 in²	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMML03000B								
CODE PHASING OUT from 04/2013	 NEW	Cu		L		L min		F0 Initial force	F1i * End force	F1p ** End force		Vo						
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	
ML3000-015-B-N	ML3000-015-C-N	15	0.59	120	4.72	105	4.13	3180	7149	4450	10003	5007	11256	106,0	6.47	1,67	3.68	✓
ML3000-025-B-N	ML3000-025-C-N	25	0.98	140	5.51	115	4.53	± 5%		4996	11231	5757	12942	136,0	8.30	1,80	3.97	✓
ML3000-038-B-N	ML3000-038-C-N	38	1.50	170	6.69	132	5.20	200 bar 2900 psi		5340	12005	6239	14026	185,0	11.29	2,00	4.41	✓
ML3000-050-B-N	ML3000-050-C-N	50	1.97	200	7.87	150	5.91			5468	12292	6419	14430	235,0	14.34	2,20	4.85	✓
ML3000-063-B-N	ML3000-063-C-N	63	2.48	230	9.06	167	6.57			5633	12664	6654	14959	283,0	17.26	2,40	5.29	✓
ML 3000-080-B-N	ML3000-080-C-N	80	3.15	270	10.63	190	7.48	+20 °C +68 °F		5766	12963	6844	15386	349,0	21.29	2,66	5.86	✓

ML



HOW TO ORDER

(10 pcs) ML3000-050-C-N

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 geliefert nur wenn der alte nicht mehr im Lager ist

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

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

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

easu MANIFOLD p. 211

* F_{1i} =

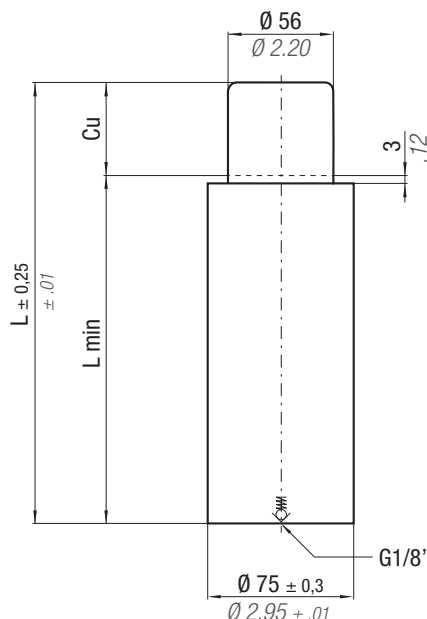
Isothermal end force at 100% Cu



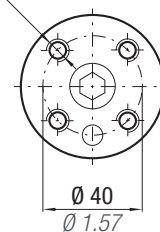
p. 16

** F_{1p} =

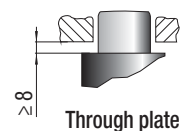
Polytrophic end force at 100% Cu



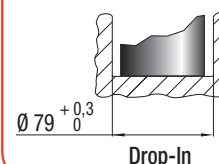
M8 X 8 (4x)



p. 150



Through plate



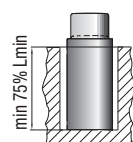
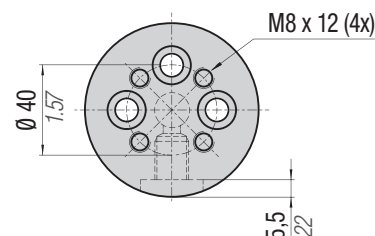
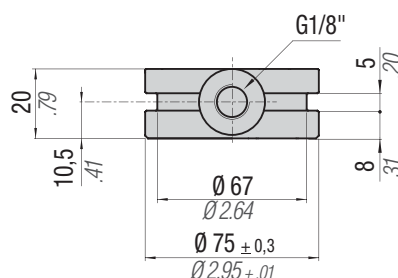
Drop-In

 N2		°F 32 176 °C 0 80	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 24,63 cm² 3.817 in²	SPM ~ 30 - 70 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMML04700C									
CODE PHASING OUT from 04/2013	 NEW	Cu		L	L min	F₀ Initial force		F_{1i} * End force *		F_{1p} ** End force **		V₀						
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	2014/68/EU
ML 4700 - 015 - B	ML 4700 - 015 - C	15	0.59	100	3.94	85	3.35	4925	11071	6966	15660	7856	17661	159,0	9.70	1,72	3.79	✓
ML 4700 - 025 - B	ML 4700 - 025 - C	25	0.98	120	4.72	95	3.74	± 5%		7858	17665	9085	20424	205,0	12.51	1,90	4.19	✓
ML 4700 - 038 - B	ML 4700 - 038 - C	38	1.5	150	5.91	112	4.41	200 bar 2900 psi		8432	18956	9891	22236	278,0	16.96	2,17	4.78	✓
ML 4700 - 050 - B	ML 4700 - 050 - C	50	1.97	180	7.09	130	5.12			8651	19448	10201	22933	353,0	21.53	2,44	5.38	✓
ML 4700 - 063 - B	ML 4700 - 063 - C	63	2.48	210	8.27	147	5.79	+20 °C +68 °F		8929	20073	10598	23825	425,0	25.93	2,72	6.00	✓
ML 4700 - 080 - B	ML 4700 - 080 - C	80	3.15	250	9.84	170	6.69			9155	20581	10922	24554	523,0	31.90	3,08	6.79	✓

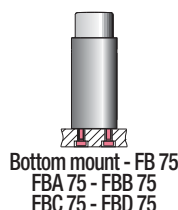
FML 4700

code: 39FML04700A

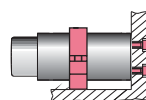
Kit speciale per trasformare cilindri autonomi
Special kit to convert self-contained cylinders
Spezial-Set zum Umbau eigenständiger Zylinder
Kit spécial pour transformer les cylindres autonomes
Kit especial para transformar cilindros autónomos
Kit especial para transformar cilindros autónomos



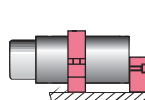
Drop-In



Bottom mount - FB 75
FBA 75 - FBB 75
FBC 75 - FBD 75



FSA 75 - FSD 75
FSE 75

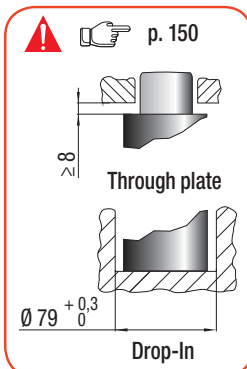
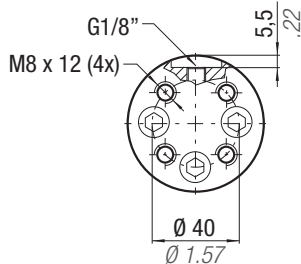
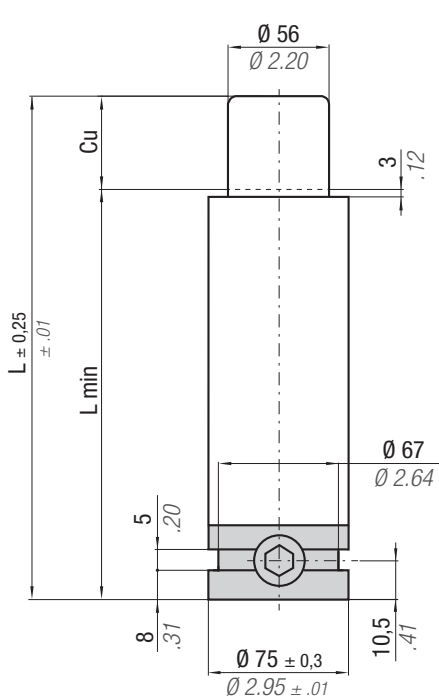


FSD 75 + R 75 A
FSE 75 + R 75 A



HOW TO ORDER

(10 pcs) ML4700-050-C



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 geliefert nur wenn der alte nicht mehr im Lager ist

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

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

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

ACTIVE SAFETY



OSAS



USAS



OPAS

* $F_{1i} =$

Isothermal end force at 100% Cu



p. 16

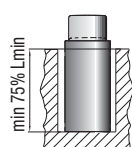
** $F_{1p} =$

Polytropic end force at 100% Cu

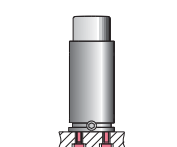


 N2		°F 32 176 °C 0 80	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 24,63 cm² 3.817 in²	SPM ~ 30 - 70 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMMML04700C									
CODE PHASING OUT from 04/2013	 NEW	Cu		L		L min		F0 Initial force		F1i * End force *		F1p ** End force **		Vo				
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	2014/68/EU
ML4700-015-B-N	ML4700-015-C-N	15	0.59	120	4.72	105	4.13	4925	11071	6966	15660	7856	17661	159,0	9.70	2,34	5.16	✓
ML4700-025-B-N	ML4700-025-C-N	25	0.98	140	5.51	115	4.53	± 5%		7858	17665	9085	20424	205,0	12.51	2,51	5.53	✓
ML4700-038-B-N	ML4700-038-C-N	38	1.50	170	6.69	132	5.20	200 bar 2900 psi		8432	18956	9891	22236	278,0	16.96	2,75	6.06	✓
ML4700-050-B-N	ML4700-050-C-N	50	1.97	200	7.87	150	5.91			8651	19448	10201	22933	353,0	21.53	3,06	6.75	✓
ML4700-063-B-N	ML4700-063-C-N	63	2.48	230	9.06	167	6.57			8929	20073	10598	23825	425,0	25.93	3,33	7.34	✓
ML4700-080-B-N	ML4700-080-C-N	80	3.15	270	10.63	190	7.48	+20 °C +68 °F		9155	20581	10922	24554	523,0	31.90	3,70	8.16	✓

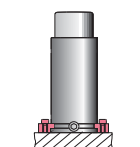
ML



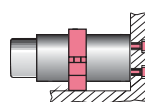
Drop-In



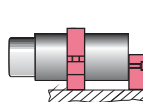
Bottom mount - FB 75
FBA 75 - FBB 75
FBC 75 - FBD 75



FS2 75 - FT 75
FS2A 75 - FTP 75



FSA 75 - FSD 75
FSE 75



FSD 75 + R 75 A
FSE 75 + R 75 A



HOW TO ORDER

(10 pcs) ML4700-050-C-N

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 geliefert nur wenn der alte nicht mehr im Lager ist

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

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

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

easu MANIFOLD p. 211

* F_{1i} =

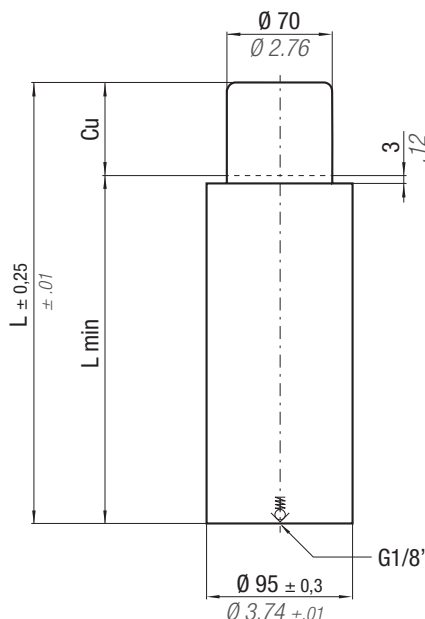
Isothermal end force at 100% Cu



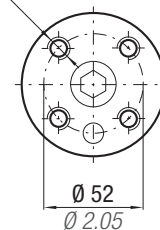
p. 16

** F_{1p} =

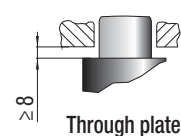
Polytrophic end force at 100% Cu



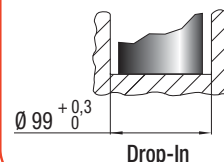
M8 X 8 (4x)



p. 150



Through plate



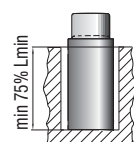
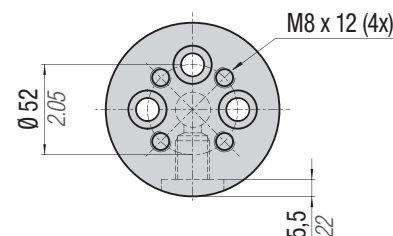
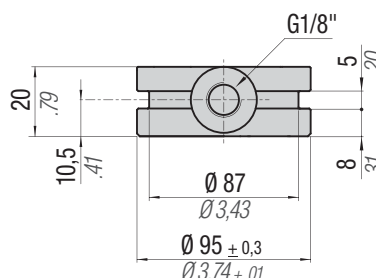
Drop-In

 N2		°F 32 176 °C 0 80	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 38,48 cm² 5.964 in²	SPM ~ 20 - 60 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMML07500C									
CODE PHASING OUT from 04/2013	 NEW	Cu		L	L min	F₀ Initial force		F_{1i} * End force		F_{1p} ** End force		V₀						
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	2014/68/EU
ML 7500 - 015 - B	ML 7500 - 015 - C	15	0.59	115	4.53	100	3.94	7700	17310	10289	23131	11469	25783	291,0	17.75	3,30	7.28	✓
ML 7500 - 025 - B	ML 7500 - 025 - C	25	0.98	135	5.31	110	4.33	± 5%		11499	25851	13116	29486	365,0	22.27	3,58	7.89	✓
ML 7500 - 038 - B	ML 7500 - 038 - C	38	1.50	165	6.50	127	5.00	200 bar 2900 psi		12377	27825	14333	32222	481,0	29.34	4,01	8.84	✓
ML 7500 - 050 - B	ML 7500 - 050 - C	50	1.97	190	7.48	140	5.51			13130	29517	15391	34600	575,0	35.08	4,36	9.61	✓
ML 7500 - 063 - B	ML 7500 - 063 - C	63	2.48	220	8.66	157	6.18			13557	30477	15996	35960	691,0	42.15	4,75	10.47	✓
ML 7500 - 080 - B	ML 7500 - 080 - C	80	3.15	260	10.24	180	7.09	+20 °C +68 °F		13910	31271	16500	37093	874,0	53.31	5,36	11.82	✓

FML 7500

code: 39FML07500A

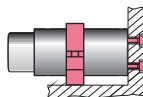
Kit speciale per trasformare cilindri autonomi
Special kit to convert self-contained cylinders
Spezial-Set zum Umbau eigenständiger Zylinder
Kit spécial pour transformer les cylindres autonomes
Kit especial para transformar cilindros autónomos
Kit especial para transformar cilindros autónomos



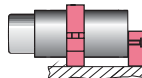
Drop-In



Bottom mount



FSA 95 - FSD 95
FSE 95

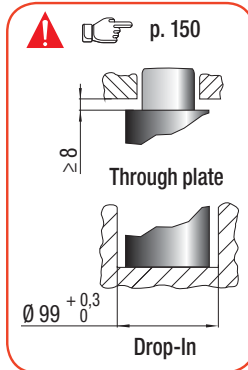
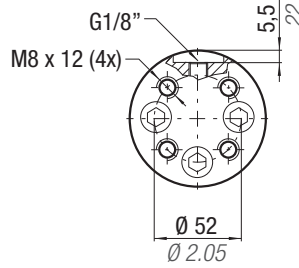
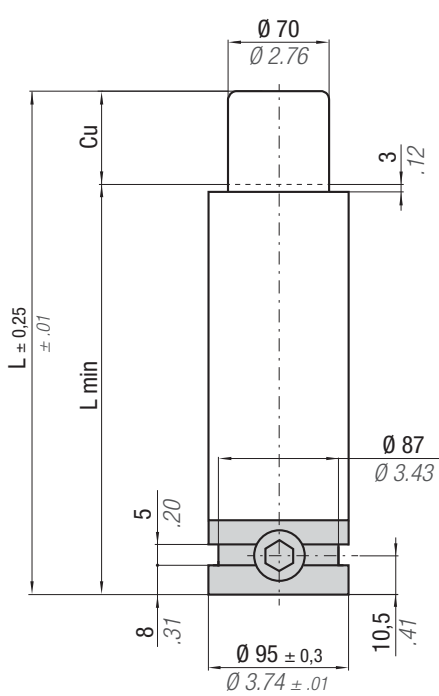


FSD 95 + R 95 A
FSE 95 + R 95 A



HOW TO ORDER

(10 pcs) ML7500-050-C



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 geliefert nur wenn der alte nicht mehr im Lager ist

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

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

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

ACTIVE SAFETY



OSAS



USAS



OPAS

* $F_{1i} =$

Isothermal end force at 100% Cu



p. 16

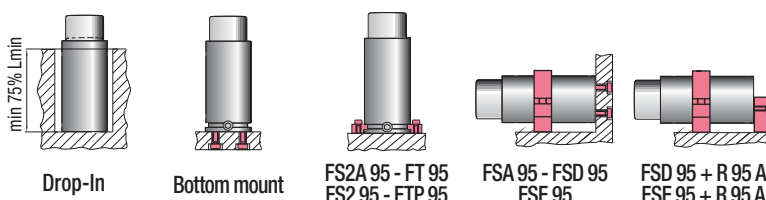
** $F_{1p} =$

Polytrophic end force at 100% Cu



 N2		°F 32 176	 °C 0 80	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 38,48 cm² 5.964 in²	SPM ~ 20 - 60 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMMML07500C								
CODE PHASING OUT from 04/2013	 NEW	Cu		L		L min		F0 Initial force	F1i * End force *	F1p ** End force **	Vo							
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	cm³	in³	~Kg	~lb			
ML7500-015-B-N	ML7500-015-C-N	15	0.59	135	5.31	120	4.72	7700	17310	10289	23131	11469	25783	291,0	17.75	4,32	9.52	✓
ML7500-025-B-N	ML7500-025-C-N	25	0.98	155	6.10	130	5.12	± 5%		11499	25851	13116	29486	365,0	22.27	4,60	10.14	✓
ML7500-038-B-N	ML7500-038-C-N	38	1.50	185	7.28	147	5.79	200 bar		12377	27825	14333	32222	481,0	29.34	5,03	11.09	✓
ML7500-050-B-N	ML7500-050-C-N	50	1.97	210	8.27	160	6.30	2900 psi		13130	29517	15391	34600	575,0	35.08	5,38	11.86	✓
ML7500-063-B-N	ML7500-063-C-N	63	2.48	240	9.45	177	6.97			13557	30477	15996	35960	691,0	42.15	5,81	12.81	✓
ML7500-080-B-N	ML7500-080-C-N	80	3.15	280	11.02	200	7.87	+20 °C +68 °F		13910	31271	16500	37093	874,0	53.31	6,39	14.09	✓

ML



HOW TO ORDER

(10 pcs) ML7500-050-C-N

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 geliefert nur wenn der alte nicht mehr im Lager ist

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

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

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

easu MANIFOLD p. 211

* F_{1i} =

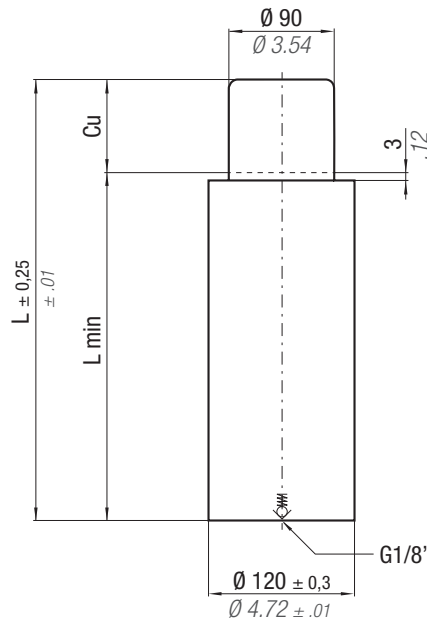
Isothermal end force at 100% Cu



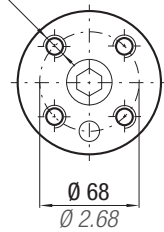
p. 16

** F_{1p} =

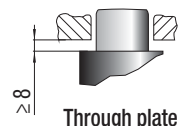
Polytropic end force at 100% Cu



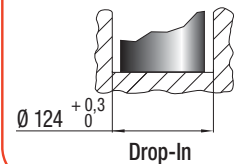
M10 X 8 (4x)



p. 150



Through plate



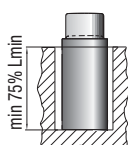
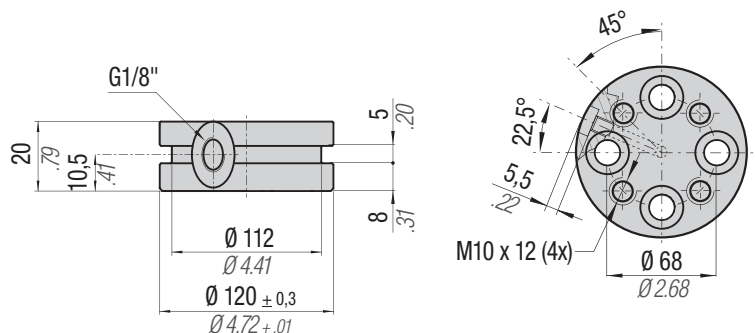
Drop-In

 N2		°F 32 176	 °C 0 80	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 63,62 cm² 9.861 in²	SPM ~ 20 - 50 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMML12000C						
CODE PHASING OUT from 04/2013	 NEW	Cu		L		L min		Fo Initial force	F1i * End force *	F1p ** End force **	Vo					
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	cm³	in³	~Kg	~lb	2014/68/EU
ML 12000 - 015 - B	ML 12000 - 015 - C	15	0.59	115	4.53	100	3.94	12720 28595	17877 40189	20134 45263	417,0 25.44	5,82 12.83	✓			
ML 12000 - 025 - B	ML 12000 - 025 - C	25	0.98	135	5.31	110	4.33	± 5%	20211 45436	23346 52484	534,0 32.57	6,29 13.87	✓			
ML 12000 - 038 - B	ML 12000 - 038 - C	38	1.50	165	6.50	127	5	200 bar	21787 48979	25558 57457	718,0 43.80	7,01 15.45	✓			
ML 12000 - 050 - B	ML 12000 - 050 - C	50	1.97	195	7.68	145	5.71	2900 psi	22429 50422	26470 59507	906,0 55.27	7,74 17.06	✓			
ML 12000 - 063 - B	ML 12000 - 063 - C	63	2.48	225	8.86	162	6.38		23211 52180	27586 62016	1089,0 66.43	8,46 18.65	✓			
ML 12000 - 080 - B	ML 12000 - 080 - C	80	3.15	265	10.43	185	7.28	+20 °C +68 °F	23860 53639	28520 64116	1335,0 81.44	9,43 20.79	✓			

FML 12000

code: 39FML12000A

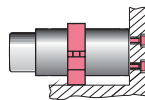
Kit speciale per trasformare cilindri autonomi
Special kit to convert self-contained cylinders
Spezial-Set zum Umbau eigenständiger Zylinder
Kit spécial pour transformer les cylindres autonomes
Kit especial para transformar cilindros autónomos
Kit especial para transformar cilindros autónomos



Drop-In



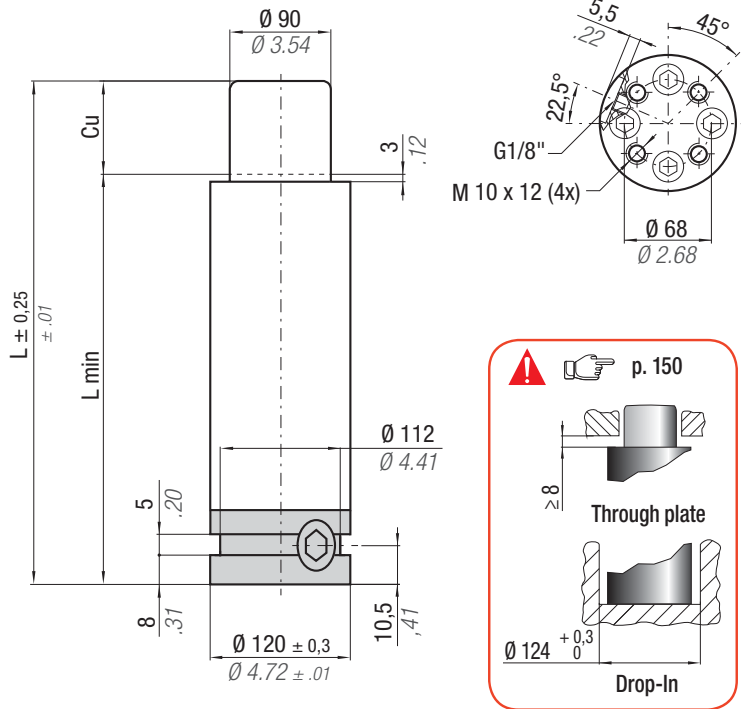
Bottom mount



FSA 120 - FSD 120

HOW TO ORDER

(10 pcs) ML12000-050-C



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 geliefert nur wenn der alte nicht mehr im Lager ist

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

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

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

ACTIVE SAFETY



OSAS



USAS



OPAS

* $F_{1i} =$

Isothermal
end force
at 100% Cu



p. 16

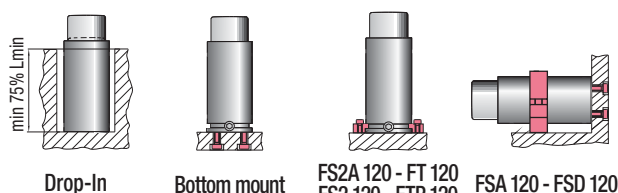
** $F_{1p} =$

Polytropic
end force
at 100% Cu



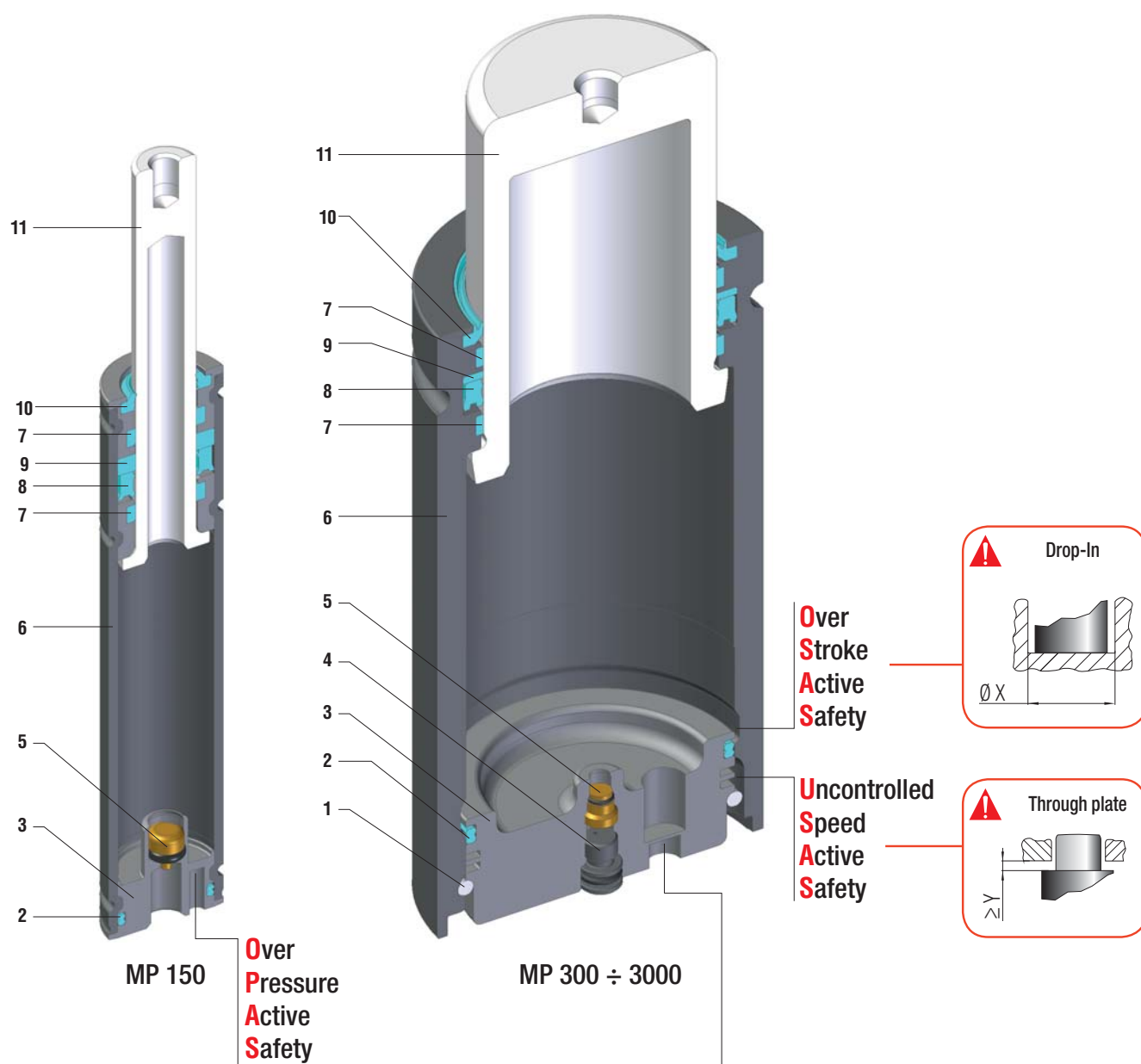
 N2		°F 32 176	°C 0 80	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 63,62 cm² 9.861 in²	SPM ~ 20 - 50 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMML12000C									
CODE PHASING OUT from 04/2013		 NEW		Cu		L		L min		F0 Initial force		F1i * End force *		F1p ** End force **		Vo		 2014/68/EU	
		mm	inch	mm	inch	mm	inch			daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb
ML12000-015-B-N	ML12000-015-C-N	15	0.59	135	5.31	120	4.72	12720 28595		17877	40189	20134	45263	417,0	25.44	7,45	16.42	✓	
ML12000-025-B-N	ML12000-025-C-N	25	0.98	155	6.10	130	5.12	± 5%		20211	45436	23346	52484	534,0	32.57	7,92	17.46	✓	
ML12000-038-B-N	ML12000-038-C-N	38	1.50	185	7.28	147	5.79	200 bar		21787	48979	25558	57457	718,0	43.80	8,64	19.05	✓	
ML12000-050-B-N	ML12000-050-C-N	50	1.97	215	8.46	165	6.50	2900 psi		22429	50422	26470	59507	906,0	55.27	9,37	20.66	✓	
ML12000-063-B-N	ML12000-063-C-N	63	2.48	245	9.65	182	7.17			23211	52180	27586	62016	1089,0	66.43	10,09	22.24	✓	
ML12000-080-B-N	ML12000-080-C-N	80	3.15	285	11.22	205	8.07	+20 °C +68 °F		23860	53639	28520	64116	1335,0	81.44	11,06	24.38	✓	

ML



HOW TO ORDER

(10 pcs) ML12000-050-C-N



Massima forza, tenuta stelo - Maximum force, rod sealed - 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

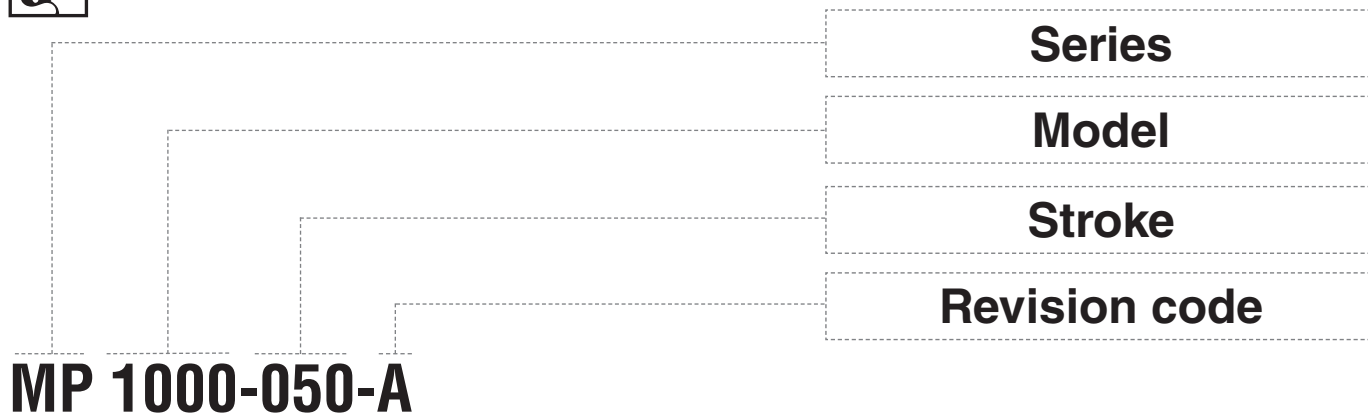
1	Retaining ring	5	Valve	9	Back-up ring
2	Dual ring seal	6	Body	10	Rod wiper
3	Bottom base	7	Guide ring	11	Rod (nitrited superfinished)
4	Plug	8	Rod seal		

RANGE CHART

Model	Body Ø		Stroke Cu		Initial force F0					
	mm	inch	mm	inch	daN	lb	OSAS	USAS	OPAS	SKUDO
MP 150	19	0.75	15 - 80	0.59 - 3.15	150	337	-	-	✓	-
MP 300	25	0.98	15 - 80	0.59 - 3.15	300	674	✓	✓	-	-
MP 500	32	1.26	10 - 80	0.59 - 3.15	500	1124	✓	✓	-	-
MP 1000	38	1.50	10 - 80	0.39 - 3.15	1000	2248	✓	✓	✓	-
MP 2000	50	1.97	10 - 80	0.39 - 3.15	2000	4496	✓	✓	✓	-
MP 3000	63	2.48	10 - 80	0.39 - 3.15	3000	6744	✓	✓	✓	-



HOW TO ORDER



MP 1000-050-A

IT	Codice cilindro autonomo
EN	Self-contained cylinder code
DE	Kode des eingeständigen Gdf.
FR	Code du cylindre autonome
ES	Codigo del cilindro autónomo
PT	Codigo do cilindro autónomo

ACTIVE SAFETY



* $F_{1i} =$

Isothermal
end force
at 100% Cu

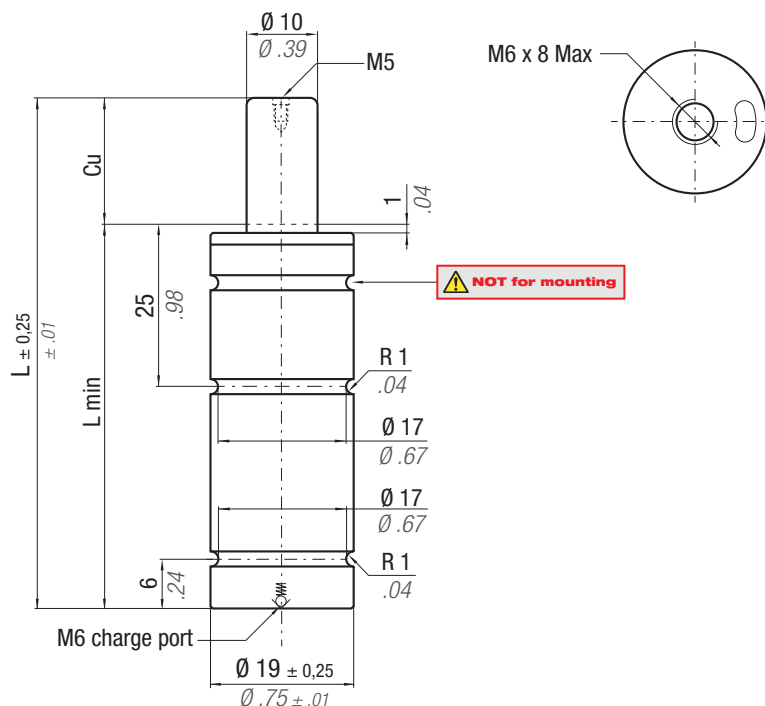


p. 16

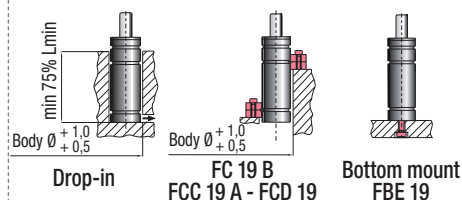


** $F_{1p} =$

Polytropic
end force
at 100% Cu

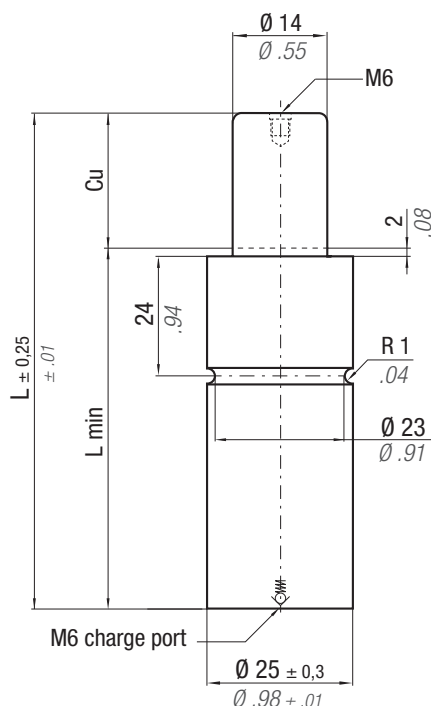


 N2		 °F 32 - 176		 °C 0 - 80		ΔP ± 0,33 %/°C		P max 191 bar 2770 psi		P min 20 bar 290 psi		S 0,79 cm² 0.122 in²		SPM ~ 40 - 80 (at 20°C)		Max Speed 1,8 m/s		Maintenance kit Disposable		
CODE 		Cu		L		L min		F0 Initial force		F1i * End force *		F1p ** End force **		Vo				 2014/68/EU		
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb			
MP 150 - 015 - A		15	0.59	85	3.35	70	2.76	150 ± 5% 337 191 bar 2770 psi + 20 °C +68 °F		195	438	214	481	6,4	0.39	0,09	0.20	✓		
MP 150 - 020 - A		20	0.79	95	3.74	75	2.95			203	456	225	506	7,5	0.46	0,10	0.22	✓		
MP 150 - 025 - A		25	0.98	105	4.13	80	3.15			209	470	234	526	8,6	0.52	0,11	0.24	✓		
MP 150 - 032 - A		32	1.26	120	4.72	88	3.46			214	481	241	542	10,4	0.63	0,11	0.24	✓		
MP 150 - 038 - A		38	1.50	135	5.31	97	3.82			214	481	241	542	12,4	0.76	0,12	0.26	✓		
MP 150 - 045 - A		45	1.77	150	5.91	105	4.13			217	488	245	551	14,1	0.86	0,13	0.29	✓		
MP 150 - 050 - A		50	1.97	160	6.3	110	4.33			220	495	249	560	15,3	0.93	0,14	0.31	✓		
MP 150 - 056 - A		56	2.20	175	6.89	119	4.69			219	492	248	558	17,2	1.05	0,14	0.31	✓		
MP 150 - 063 - A		63	2.48	190	7.48	127	5.00			221	497	251	564	19,0	1.16	0,15	0.33	✓		
MP 150 - 080 - A		80	3.15	220	8.66	140	5.51			231	519	264	593	22,0	1.34	0,17	0.37	✓		

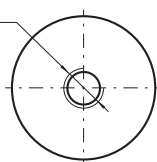


HOW TO ORDER

(10 pcs) MP 150-050-A



M6 X 8 Max



* $F_{1i} =$

Isothermal
end force
at 100% Cu



p. 16



** $F_{1p} =$

Polytropic
end force
at 100% Cu

**ACTIVE
SAFETY**



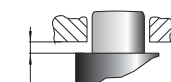
OSAS



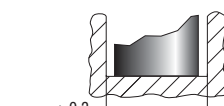
USAS



p. 166



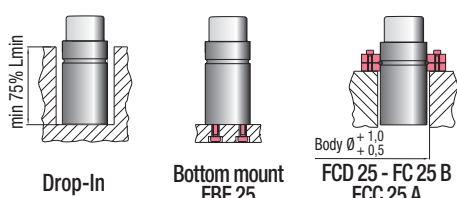
Through plate



Drop-In

 N ₂		 °F 32 176		 °C 0 80		ΔP ± 0,33 %/°C		P max 195 bar 2828 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		Maintenance kit Disposable			
CODE 		Cu		L		L min		F ₀ Initial force		F _{1i} * End force *		F _{1p} ** End force **		V ₀ cm ³ in ³		 ~Kg ~lb		PED 2014/68/EU			
MP 300 - 015 - A		15	0.59	85	3.35	70	2.76	300 ± 5%	daN	lb	462	1039	526	1182	8,2	0.50	0,18	0.40	✓		
MP 300 - 020 - A		20	0.79	95	3.74	75	2.95				489	1099	563	1266	9,8	0.60	0,20	0.44	✓		
MP 300 - 025 - A		25	0.98	105	4.13	80	3.15				510	1147	592	1331	11,5	0.70	0,21	0.46	✓		
MP 300 - 032 - A		32	1.26	120	4.72	88	3.46				524	1178	613	1378	14,1	0.86	0,23	0.51	✓		
MP 300 - 038 - A		38	1.50	135	5.31	97	3.82	195 bar 2828 psi	daN	lb	520	1169	606	1362	17,0	1.04	0,25	0.55	✓		
MP 300 - 045 - A		45	1.77	150	5.91	105	4.13				529	1189	620	1394	19,6	1.20	0,27	0.60	✓		
MP 300 - 050 - A		50	1.97	160	6.30	110	4.33				538	1209	633	1423	21,3	1.30	0,28	0.62	✓		
MP 300 - 056 - A		56	2.20	175	6.89	119	4.69				533	1198	626	1407	24,1	1.47	0,30	0.66	✓		
MP 300 - 063 - A		63	2.48	190	7.48	127	5.00	+ 20 °C +68 °F	daN	lb	539	1212	634	1425	26,7	1.63	0,32	0.71	✓		
MP 300 - 080 - A		80	3.15	225	8.86	145	5.71				555	1248	656	1475	32,7	1.99	0,36	0.79	✓		

MP



HOW TO ORDER

(10 pcs) MP 300-050-A

ACTIVE SAFETY



OSAS



USAS

* $F_{1i} =$

Isothermal
end force
at 100% Cu

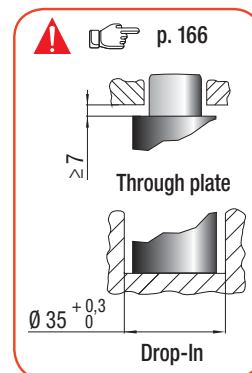
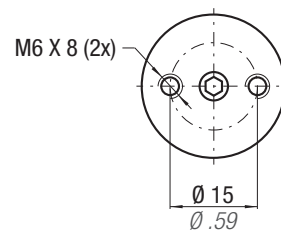
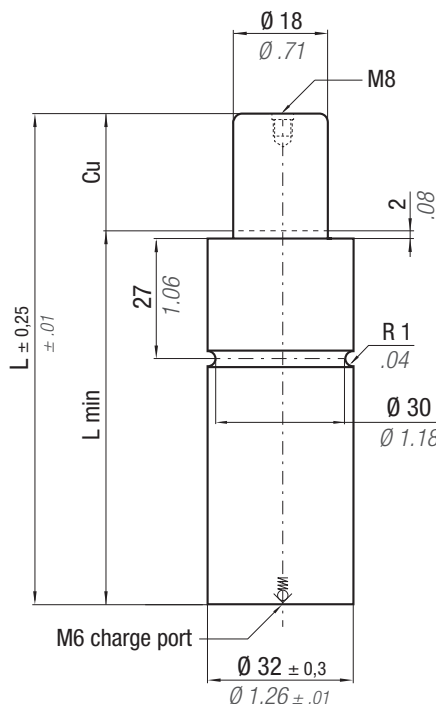


p. 16

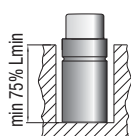


** $F_{1p} =$

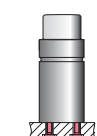
Polytropic
end force
at 100% Cu



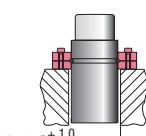
 N2		 °F 32 176	 °C 0 80	ΔP ± 0,33 %/°C	P max 197 bar 2857 psi	P min 20 bar 290 psi	S 2,54 cm² 0.394 in²	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit Disposable								
CODE		Cu		L		L min		F0 Initial force		F1i * End force *		F1p ** End force **		Vo				
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	2014/68/EU
MP 500 - 010 - A		10	0.39	75	2.95	65	2.56	500 ± 5%	1124	659	1481	723	1625	13,4	0.82	0,29	0.64	✓
MP 500 - 015 - A		15	0.59	85	3.35	70	2.76			709	1594	790	1776	16,4	1.00	0,31	0.68	✓
MP 500 - 020 - A		20	0.79	95	3.74	75	2.95			747	1679	842	1893	19,3	1.18	0,33	0.73	✓
MP 500 - 025 - A		25	0.98	105	4.13	80	3.15			778	1749	884	1987	22,2	1.35	0,34	0.75	✓
MP 500 - 032 - A		32	1.26	120	4.72	88	3.46			803	1805	919	2066	26,8	1.63	0,37	0.82	✓
MP 500 - 038 - A		38	1.50	135	5.31	97	3.82	197 bar 2857 psi		804	1807	920	2068	31,8	1.94	0,40	0.88	✓
MP 500 - 045 - A		45	1.77	150	5.91	105	4.13			820	1843	943	2120	36,4	2.22	0,43	0.95	✓
MP 500 - 050 - A		50	1.97	160	6.30	110	4.33			834	1875	963	2165	39,3	2.40	0,45	0.99	✓
MP 500 - 056 - A		56	2.20	175	6.89	119	4.69			831	1868	958	2154	44,3	2.70	0,48	1.06	✓
MP 500 - 063 - A		63	2.48	195	7.68	132	5.20			816	1834	937	2106	51,4	3.14	0,52	1.15	✓
MP 500 - 080 - A		80	3.15	230	9.06	150	5.91			844	1897	976	2194	61,8	3.77	0,59	1.30	✓



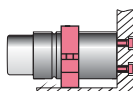
Drop-In



Bottom mount
FBE 32



FCD 32 - FC 32
FCQC 32

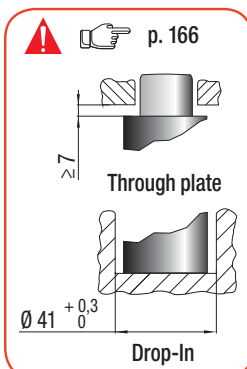
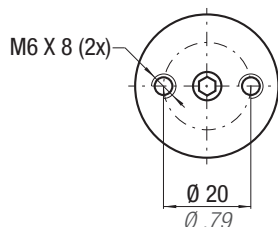
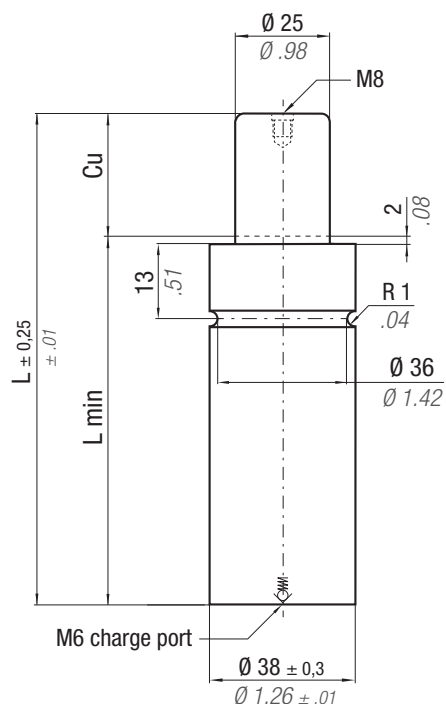


FSA 32 - FSD 32



HOW TO ORDER

(10 pcs) MP 500-050-A



* $F_{1i} =$

Isothermal
end force
at 100% Cu



p. 16



** $F_{1p} =$

Polytropic
end force
at 100% Cu

**ACTIVE
SAFETY**



OSAS



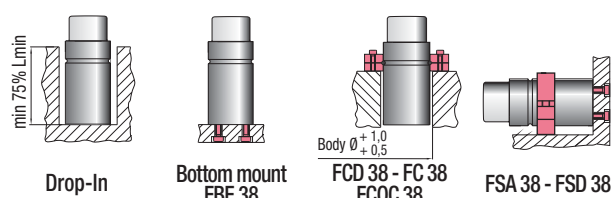
USAS



OPAS

 N2		 °F 32 176		 °C 0 80		ΔP ± 0,33 %/°C		P max 205 bar 2973 psi		P min 20 bar 290 psi		S 4,91 cm² 0.761 in²		SPM ~ 40 - 80 (at 20°C)		Max Speed 1,6 m/s		Maintenance kit 39BMMP01000A							
CODE				Cu		L		L min		F0 Initial force		F1i * End force *		F1p ** End force **		Vo									
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb								
MP 1000 - 010 - A		10	0.39	75	2.95	65	2.56	1000 ± 5%	2248	1417	3186	1588	3570	21,5	1.31	0,37	0.82	✓							
MP 1000 - 015 - A		15	0.59	85	3.35	70	2.76							1545	3473	1762	3961	26,6	1.62	0,39	0.86	✓			
MP 1000 - 020 - A		20	0.79	95	3.74	75	2.95							1645	3698	1898	4267	31,6	1.93	0,41	0.90	✓			
MP 1000 - 025 - A		25	0.98	105	4.13	80	3.15							1724	3876	2009	4516	36,7	2.24	0,44	0.97	✓			
MP 1000 - 032 - A		32	1.26	120	4.72	88	3.46							1789	4022	2100	4721	44,5	2.71	0,48	1.06	✓			
MP 1000 - 038 - A		38	1.50	135	5.31	97	3.82	205 bar 2973 psi		1790	4024	2101	4723	52,8	3.22	0,51	1.12	✓							
MP 1000 - 045 - A		45	1.77	150	5.91	105	4.13							1832	4118	2159	4854	60,6	3.70	0,55	1.21	✓			
MP 1000 - 050 - A		50	1.97	160	6.3	110	4.33							1868	4199	2210	4968	65,7	4.01	0,58	1.28	✓			
MP 1000 - 056 - A		56	2.20	175	6.89	119	4.69							1859	4179	2198	4941	74,0	4.51	0,62	1.37	✓			
MP 1000 - 063 - A		63	2.48	205	8.07	142	5.59							1716	3858	1997	4489	93,1	5.68	0,70	1.54	✓			
MP 1000 - 080 - A		80	3.15	240	9.45	160	6.30			1792	4029	2103	4728	111,1	6.78	0,79	1.74	✓							

MP



 **HOW TO ORDER**

(10 pcs) MP 1000-050-A

ACTIVE SAFETY



OSAS



USAS



OPAS

* $F_{1i} =$

Isothermal
end force
at 100% Cu

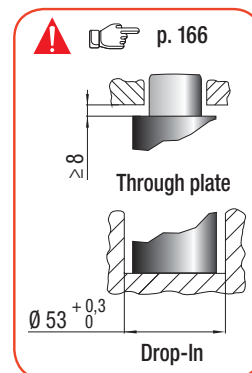
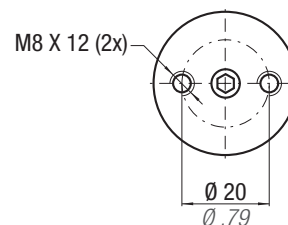
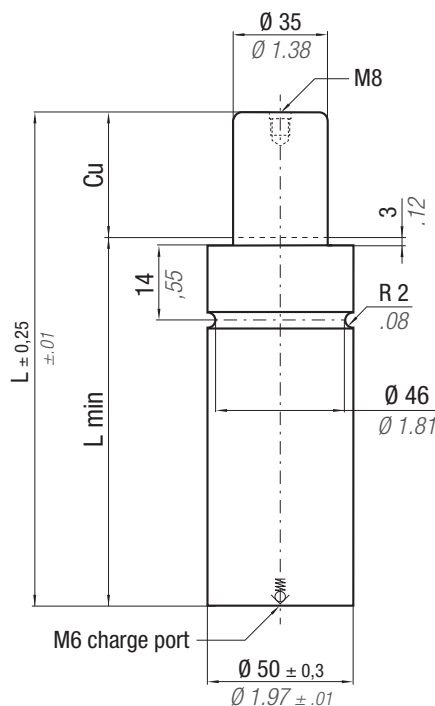


p. 16

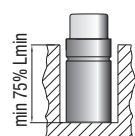


** $F_{1p} =$

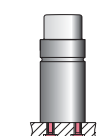
Polytropic
end force
at 100% Cu



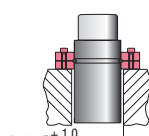
 N₂	°F 32 176 °C 0 80	ΔP ± 0,33 %/°C	P max 209 bar 3031 psi	P min 20 bar 290 psi	S 9,62 cm ² 1.491 in ²	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMMP02000A									
CODE 	Cu		L		L min		F₀ Initial force		F_{1i} * End force		F_{1p} ** End force		V₀			PED 2014/68/EU	
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm ³	in ³	~Kg	~lb	
MP 2000 - 010 - A	10	0.39	90	3.54	80	3.15	2000 ± 5%	4496	2641	5937	2911	6544	52,0	3.17	0,76	1,68	✓
MP 2000 - 015 - A	15	0.59	115	4.53	100	3.94			2621	5892	2885	6486	80,0	4.88	0,89	1,96	✓
MP 2000 - 020 - A	20	0.79	125	4.92	105	4.13			2780	6250	3094	6956	89,1	5.44	0,93	2,05	✓
MP 2000 - 025 - A	25	0.98	135	5.31	110	4.33			2922	6569	3283	7380	98,3	6.00	0,98	2,16	✓
MP 2000 - 032 - A	32	1.26	150	5.91	118	4.65			3080	6924	3495	7857	112,3	6.85	1,04	2,29	✓
MP 2000 - 038 - A	38	1.50	165	6.50	127	5.00	209 bar 3031 psi	+ 20 °C +68 °F	3159	7102	3601	8095	127,1	7.75	1,11	2,45	✓
MP 2000 - 045 - A	45	1.77	180	7.09	135	5.31			3275	7362	3759	8451	141,1	8.61	1,18	2,60	✓
MP 2000 - 050 - A	50	1.97	190	7.48	140	5.51			3361	7556	3876	8714	150,3	9.17	1,22	2,69	✓
MP 2000 - 056 - A	56	2.20	205	8.07	149	5.87			3403	7650	3934	8844	165,0	10.07	1,29	2,84	✓
MP 2000 - 063 - A	63	2.48	220	8.66	157	6.18			3485	7835	4047	9098	179,1	10.93	1,36	3,00	✓
MP 2000 - 080 - A	80	3.15	255	10.04	175	6.89			3673	8257	4308	9685	211,4	12.9	1.51	3.33	✓



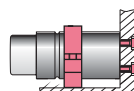
Drop-In



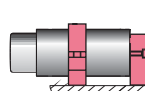
Bottom mount
FBE 50



FCD 50 - FC 50 A
FCQC 50 A



FSA 50 - FSD 50
FSE 50

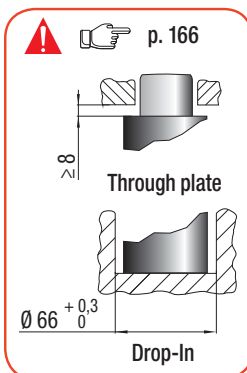
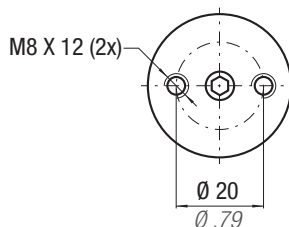
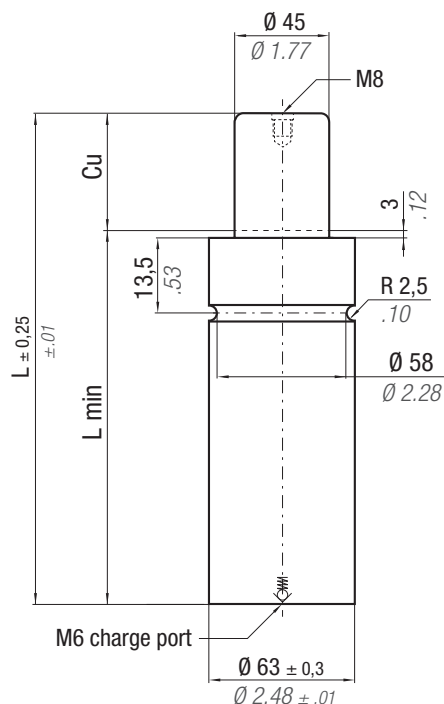


FSD 50 + R 50 A
FSE 50 + R 50 A



HOW TO ORDER

(10 pcs) MP 2000-050-A



* $F_{1i} =$

Isothermal
end force
at 100% Cu



p. 16

** $F_{1p} =$

Polytropic
end force
at 100% Cu



**ACTIVE
SAFETY**



OSAS



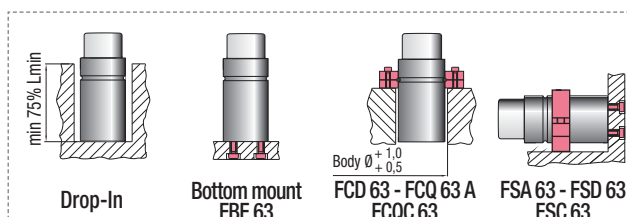
USAS



OPAS

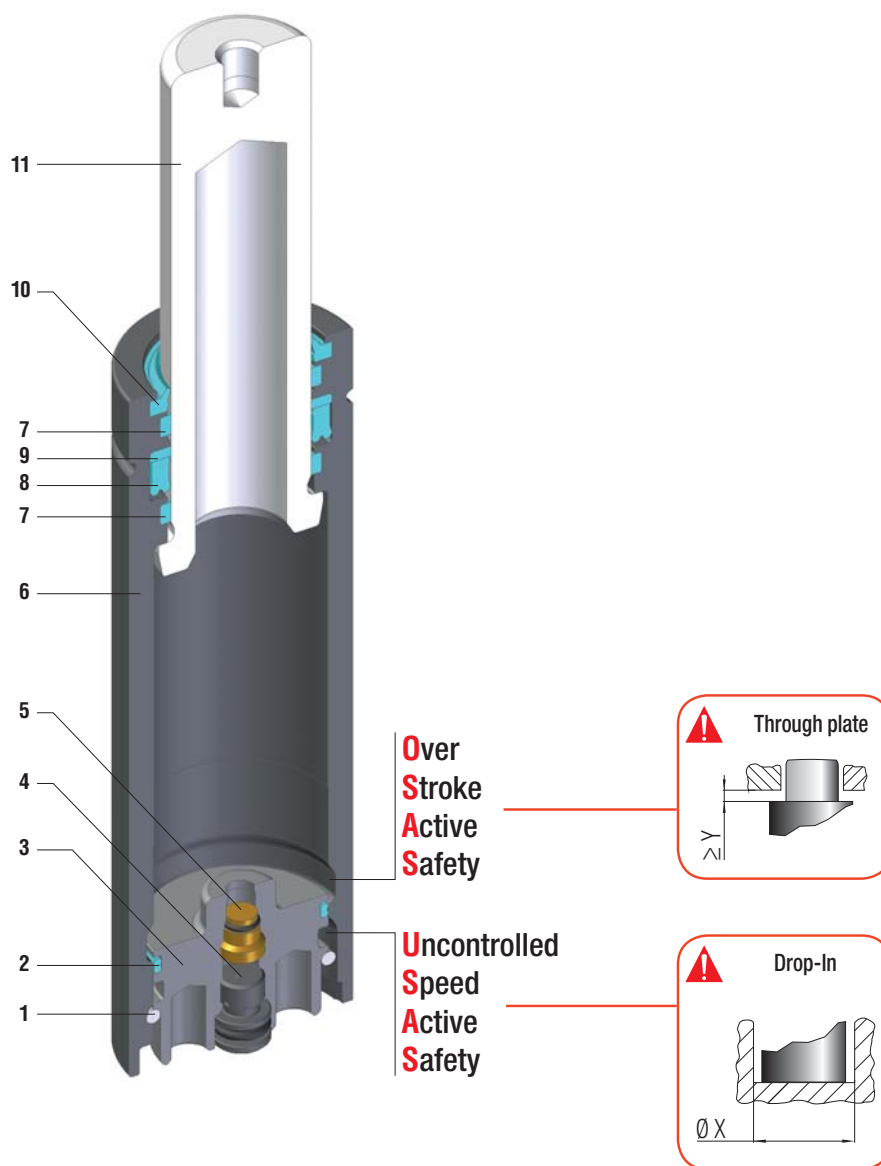
 N₂	°F 32 176		°C 0 80	ΔP ± 0,33 %/°C	P max 189 bar 1741 psi	P min 20 bar 290 psi	S 15,90 cm ² 2.465 in ²	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMMP03000A									
CODE				Cu		L		L min		F₀ Initial force		F_{1i} * End force		F_{1p} ** End force		V₀			
	mm	inch		mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm ³	in ³	~Kg	~lb		2014/68/EU
MP 3000 - 010 - A	10	0.39		95	3.74	85	3.35	3000 ± 5%	6744	3862	8682	4243	9539	89,7	5.47	1,25	2.76	✓	
MP 3000 - 015 - A	15	0.59		115	4.53	100	3.94			3932	8839	4339	9754	126,4	7.71	1,40	3.09	✓	
MP 3000 - 020 - A	20	0.79		125	4.92	105	4.13			4165	9363	4657	10469	141,8	8.65	1,46	3.22	✓	
MP 3000 - 025 - A	25	0.98		135	5.31	110	4.33			4370	9824	4941	11108	157,2	9.59	1,52	3.35	✓	
MP 3000 - 032 - A	32	1.26		150	5.91	118	4.65	189 bar 2741 psi		4593	10325	5253	11809	180,9	11.03	1,62	3.57	✓	
MP 3000 - 038 - A	38	1.50		165	6.50	127	5.00			4696	10557	5399	12137	205,8	12.55	1,72	3.79	✓	
MP 3000 - 045 - A	45	1.77		180	7.09	135	5.31			4856	10917	5626	12648	229,6	14.01	1,82	4.01	✓	
MP 3000 - 050 - A	50	1.97		190	7.48	140	5.51			4975	11184	5795	13028	245,0	14.95	1,89	4.17	✓	
MP 3000 - 063 - A	63	2.48		220	8.66	157	6.18	+ 20 °C +68 °F		5137	11548	6029	13554	293,6	17.91	2,08	4.59	✓	
MP 3000 - 080 - A	80	3.15		255	10.04	175	6.89			5389	12115	6395	14377	348,2	21.24	2,31	5.09	✓	

MP



HOW TO ORDER

(10 pcs) MP 3000-050-A



Ø 32 | Massima forza, tenuta stelo - Maximum force, rod sealed - 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

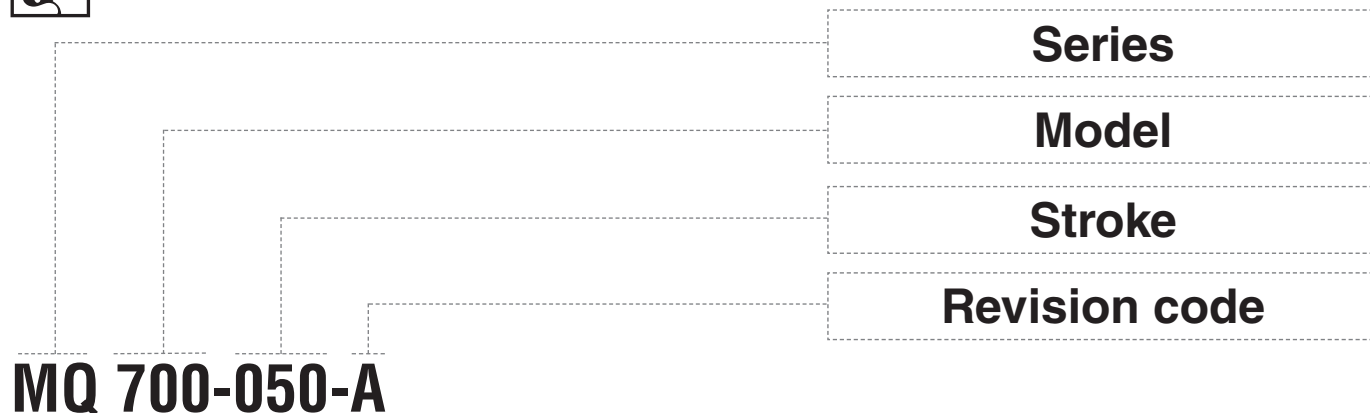
1	Retaining ring	5	Valve	9	Back-up ring
2	Dual ring seal	6	Body	10	Rod wiper
3	Bottom base	7	Guide ring	11	Rod (nitrited superfinished)
4	Plug	8	Rod seal		

RANGE CHART

Model	Body Ø		Stroke Cu		Initial force F0					
	mm	inch	mm	inch	daN	lb	OSAS	USAS	OPAS	SKUDO
MQ 700	32	1.26	10 - 80	0.39 - 3.15	660	1484	✓	✓	-	-



HOW TO ORDER



MQ 700-050-A

IT	Codice cilindro autonomo
EN	Self-contained cylinder code
DE	Kode des eingeständigen Gdf.
FR	Code du cylindre autonome
ES	Código del cilindro autónomo
PT	Código do cilindro autónomo

ACTIVE SAFETY



OSAS



USAS

* $F_{1i} =$

Isothermal
end force
at 100% Cu

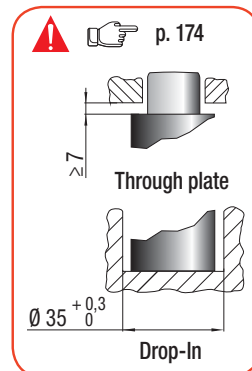
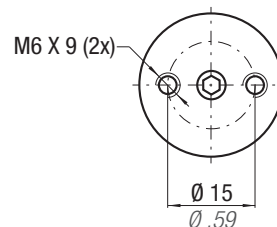
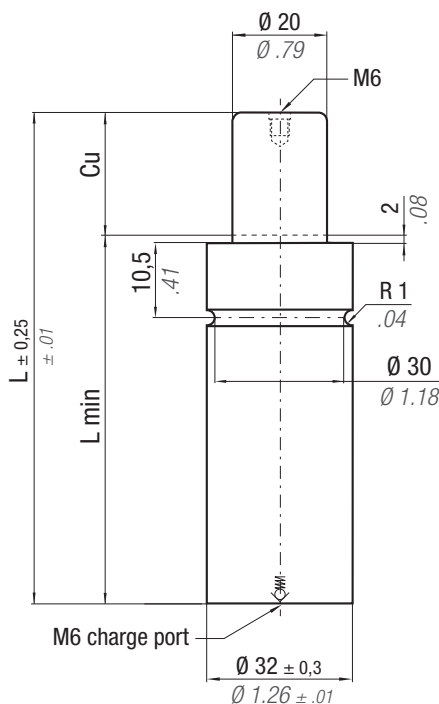


p. 16

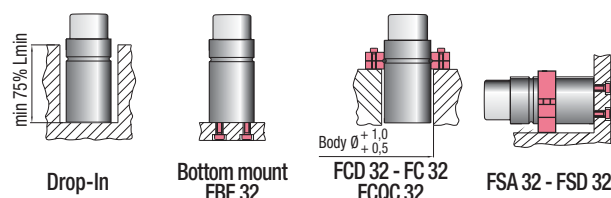


** $F_{1p} =$

Polytropic
end force
at 100% Cu



	°F 32 176 °C 0 - 80	ΔP ± 0,33 %/°C	P max 210 bar 3045 psi	P min 20 bar 290 psi	S 3,14 cm² 0.487 in²	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit Disposable	
CODE 	Cu mm inch	L mm inch	L min mm inch	F0 Initial force daN lb	F1i * End force daN lb	F1p ** End force daN lb	Vo cm³ in³	 ~Kg ~lb	PED 2014/68/EU
MQ 700 - 010 - A	10 0.39	75 2.95	65 2.56	660 1484 ± 5%	987 2219	1114 2504	12,0 0.73	0,29 0.64	✓
MQ 700 - 015 - A	15 0.59	85 3.35	70 2.76		1084 2437	1244 2797	15,0 0.92	0,31 0.68	✓
MQ 700 - 020 - A	20 0.79	95 3.74	75 2.95		1157 2601	1344 3021	18,0 1.10	0,33 0.73	✓
MQ 700 - 025 - A	25 0.98	105 4.13	80 3.15		1214 2729	1423 3199	21,0 1.28	0,35 0.77	✓
MQ 700 - 032 - A	32 1.26	120 4.72	88 3.46		1256 2824	1482 3332	26,0 1.59	0,38 0.84	✓
MQ 700 - 038 - A	38 1.50	135 5.31	97 3.82	210 bar 3045 psi + 20 °C +68 °F	1246 2801	1468 3300	32,0 1.95	0,41 0.90	✓
MQ 700 - 045 - A	45 1.77	150 5.91	105 4.13		1273 2862	1506 3386	36,0 2.20	0,44 0.97	✓
MQ 700 - 050 - A	50 1.97	160 6.30	110 4.33		1299 2920	1542 3467	39,0 2.38	0,46 1.01	✓
MQ 700 - 056 - A	56 2.20	175 6.89	119 4.69		1287 2893	1525 3428	45,0 2.75	0,49 1.08	✓
MQ 700 - 063 - A	63 2.48	195 7.68	132 5.20		1250 2810	1474 3314	52,0 3.17	0,53 1.17	✓
MQ 700 - 080 - A	80 3.15	230 9.06	150 5.91		1300 2923	1543 3469	63,0 3.84	0,60 1.32	✓



HOW TO ORDER

(10 pcs) MQ 700-050-A