

Hydraulic Cylinders

Double Acting



HM250 Series

ISO Sealings

Maximum Service Pressure : 250 bar

Bore : Ø25 to 100 mm





GENERAL CHARACTERISTICS

- Service Pressure : 90 -250 bar max
- Test Pressure : 325 bar
- Fluids : Hydraulic Mineral Oils HM-HL
10 to 40 Cst at 50 °C
Non-inflammable fluids class C or D
- Temperature : from -20 to +80 °C : Seals Type 1
up to +200 °C : Seals Type 9
Water-glycol max 90 °C : Seals Type 7
- Movement Speed : 0.5m/sec max
- Filtration : ISO 17/14 or better
- Connection on mounting plan with holes type
« manifold »
- Impermeability with ISO Seals

FORCES

- Forces developed while pushing (daN)

Bore Ø	Section cm ²	Pressure (bar)							
		90	120	140	160	180	200	220	250
25	4,90	441	588	686	784	882	980	1 078	1 225
32	8,04	724	965	1 126	1 286	1 447	1 608	1 769	2 010
40	12,56	1 130	1 507	1 758	2 010	2 261	2 512	2 763	3 140
50	19,63	1 767	2 356	2 748	3 141	3 533	3 926	4 319	4 908
63	31,17	2 805	3 740	4 364	4 987	5 611	6 234	6 857	7 793
80	50,26	4 523	6 031	7 036	8 042	9 047	10 052	11 057	12 565
100	78,54	7 069	9 425	10 996	12 566	14 137	15 708	17 279	19 635

All dimensions are in mm

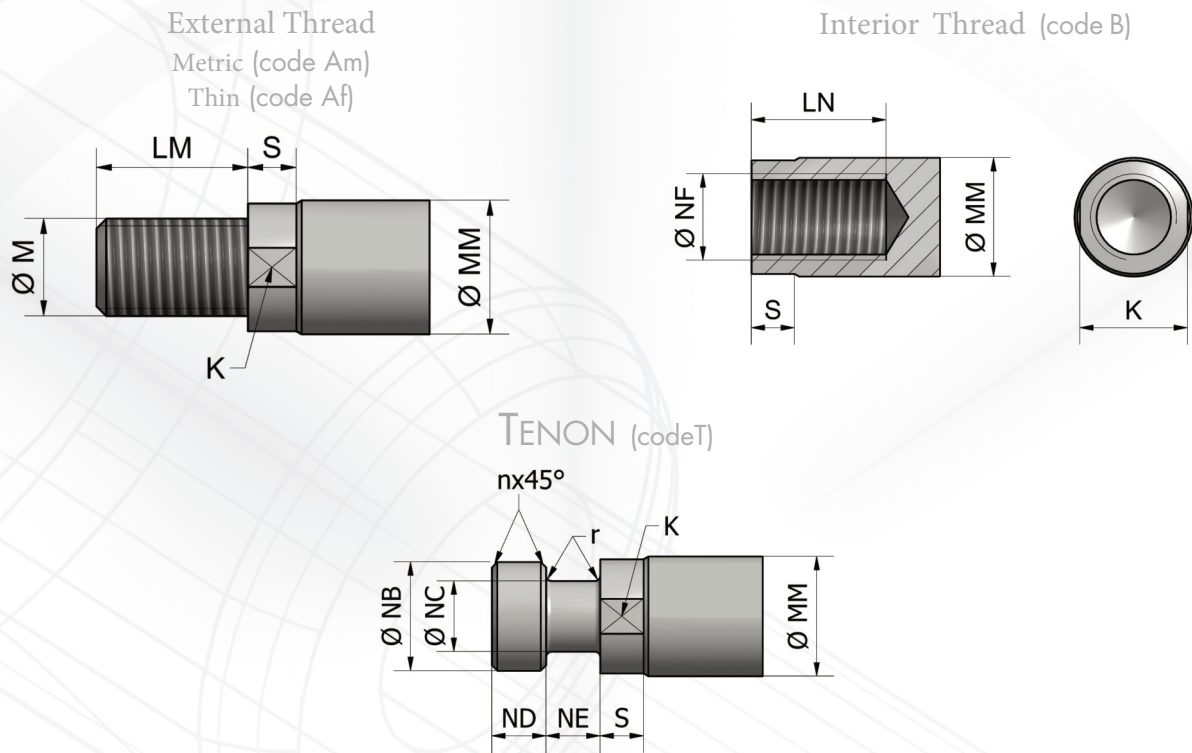
- Forces developed while pulling (daN)

Bore Ø	Rod Ø	Annular Section cm ²	Pressure (bar)							
			90	120	140	160	180	200	220	250
25	16	2,90	261	348	406	464	522	580	638	725
32	18	5,50	495	660	770	880	990	1 100	1 210	1 375
40	22	8,76	788	1 051	1 226	1 402	1 577	1 752	1 927	2 190
50	28	13,48	1 213	1 618	1 887	2 157	2 426	2 696	2 966	3 370
63	36	21,00	1 890	2 520	2 940	3 360	3 780	4 200	4 620	5 250
80	45	34,36	3 092	4 123	4 810	5 498	6 185	6 872	7 559	8 590
100	56	53,91	4 852	6 469	7 547	8 626	9 704	10 782	11 860	13 478

All dimensions are in mm



Rod End



Bore $\varnothing$		25	32	40	50	63	80	100
$\varnothing MM$ (Rod $\varnothing$)		16	18	22	28	36	45	56
K		13	14	17	24	32	40	46
LM		30	35	45	45	55	65	85
$\varnothing M$	Am	M12x1,75	M12x1,75	M16x2	M24x3	M30x3,5	M36x4	M45x4,5
	AF	-	-	M16x150	M24x150	M30x150	M36x150	M45x150
$\varnothing NB$		14	16	20	25	33	42	53
$\varnothing NC$		8	10	13	16	22	30	36
ND		6	8	10	13	16	20	30
NE		6	8	10	13	16	20	30
n		0,5	1	1	1	2	2	2
r		1	1	1	1	2	2	2
$\varnothing NF$		M10x1,5	M12x1,75	M16x2	M20x2,5	M24x3	M30x3,5	M42x4,5
LN		15	20	25	30	36	40	60
S		5	8	8	8	10	12	12

All dimensions are in mm

HM250 Series

Cushioning Type

- L1 No Cushioning :



- L2 Front and Rear Cushioning :



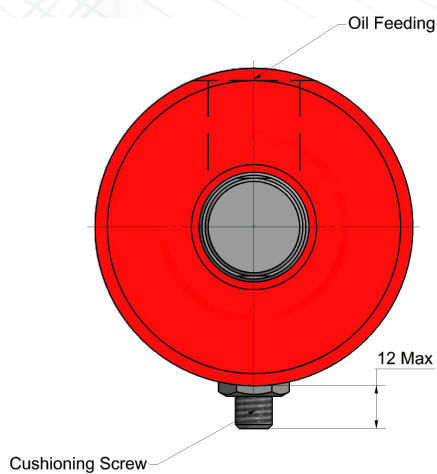
- L3 Front Cushioning :



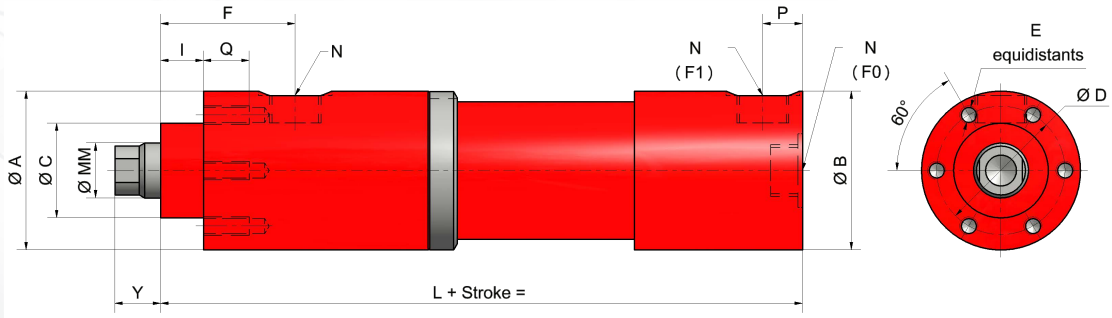
- L4 Rear Cushioning :



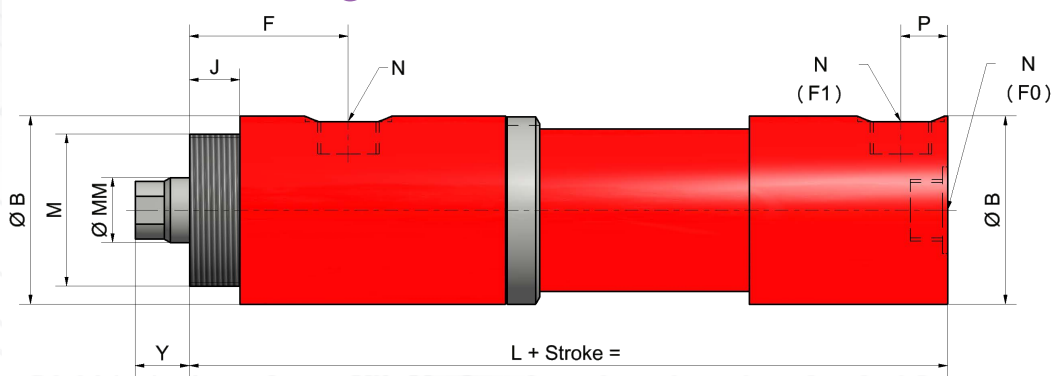
Cushioning Screw POSITION



MX9 Mounting



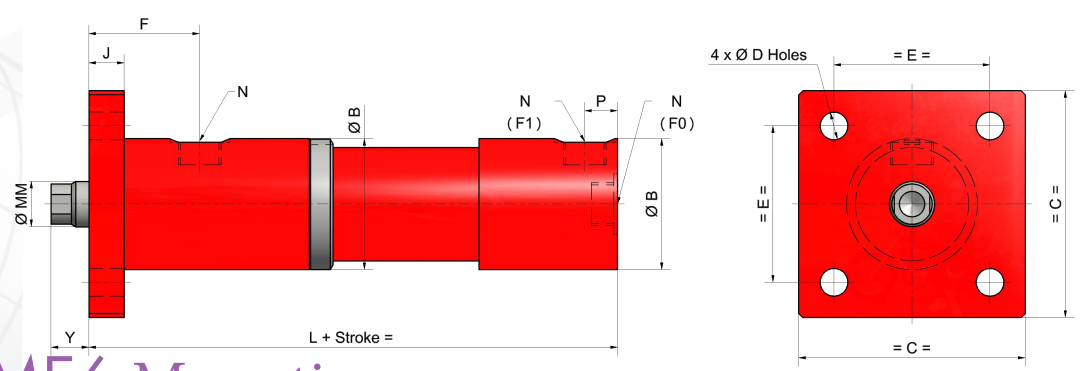
MX5 Mounting



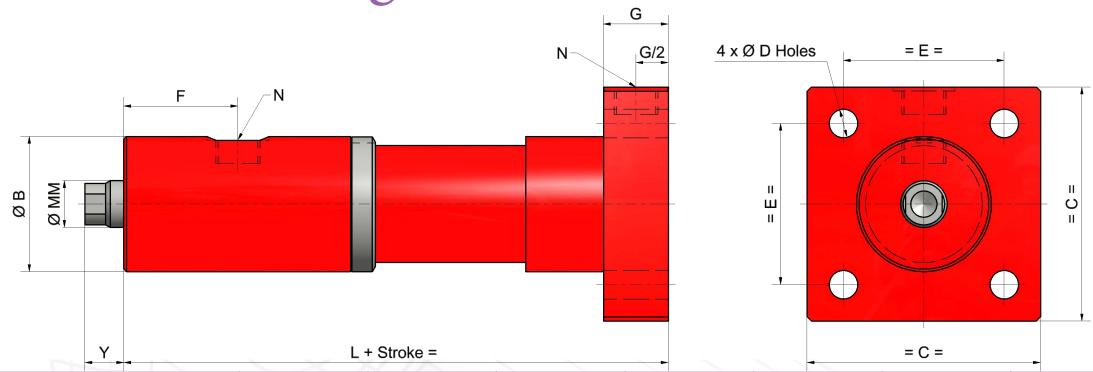
Bore Ø	25	32	40	50	63	80	100
Ø MM (Rod Ø)	16	18	22	28	36	45	56
Ø A	45	52	65	80	100	125	150
Ø B	45	52	65	72	90	115	138
Ø C	24	31	38	50	60	74	98
Ø D	35	42	54	67	80	102	130
E	M6	M6	M8	M8	M10	M16	M16
F	41	44	50	53	70	85	92
I	11	14	16	20	25	35	40
J	11	14	16	20	25	35	35
L+Stroke ± 1mm	L1	98	110	120	138	154	189
	L2	134	156	173	188	197	247
	L3	116	133	147	161	180	224
	L4	116	133	147	161	171	212
M	M38X150	M42X150	M52X200	M60X200	M76X200	M92X200	M110X300
N	1/4"Gaz	3/8"Gaz	3/8"Gaz	1/2"Gaz	1/2"Gaz	1/2"Gaz	1/2"Gaz
P	10	13	13	20	15	20	20
Q	12	15	17	18	20	32	32
Y	11	15	18	20	20	25	25
Minimum Stroke	35	45	40	45	40	60	60

HM250 Series

ME5 Mounting



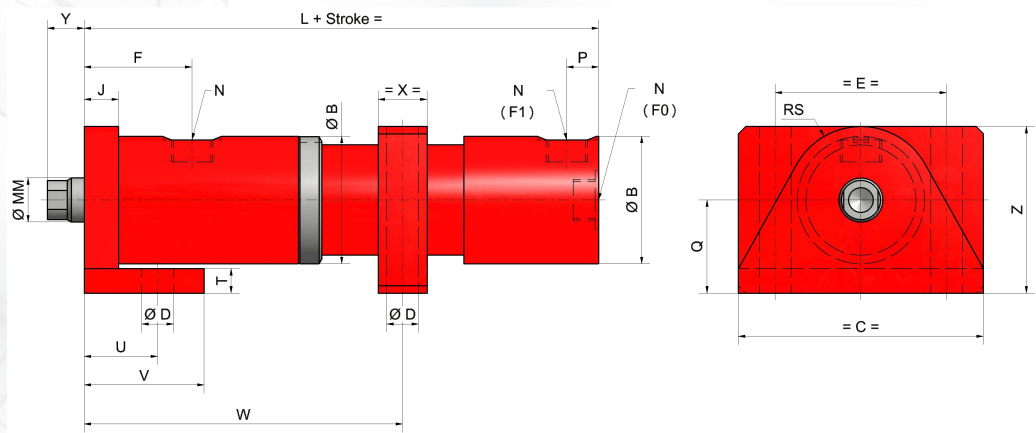
ME6 Mounting



Bore Ø			25	32	40	50	63	80	100
Ø MM (Rod Ø)			16	18	22	28	36	45	56
Ø B			45	52	65	72	90	115	138
C			65	90	100	110	130	150	160
Ø D			9	11	14	14	18	18	18
E			48	62	70	80	96	115	125
F			41	44	50	53	70	85	92
G			20	25	25	30	30	30	30
J			11	14	16	20	25	35	35
L+Stroke ± 1mm	ME5	L1	98	110	120	133	154	177	189
		L2	134	156	173	188	197	227	247
		L3	116	133	147	161	180	207	224
		L4	116	133	147	161	171	197	212
L+Stroke ± 1mm	ME6	L1	98	110	122	138	154	175	182
		L2	134	156	175	188	197	225	240
		L3	116	133	149	161	180	205	217
		L4	116	133	149	161	171	195	205
N			1/4"Gaz	3/8"Gaz	3/8"Gaz	1/2"Gaz	1/2"Gaz	1/2"Gaz	1/2"Gaz
P			10	13	13	20	15	20	20
Y			11	15	18	20	20	25	25
Minimum Stroke			35	45	40	45	40	60	60

All dimensions are in mm

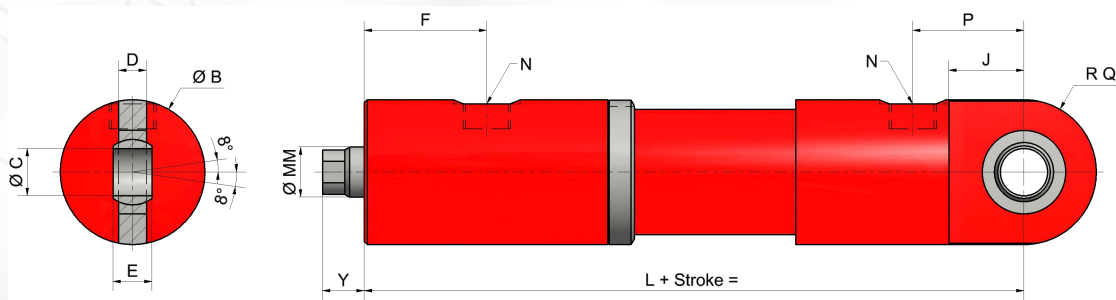
■ MS2 Mounting



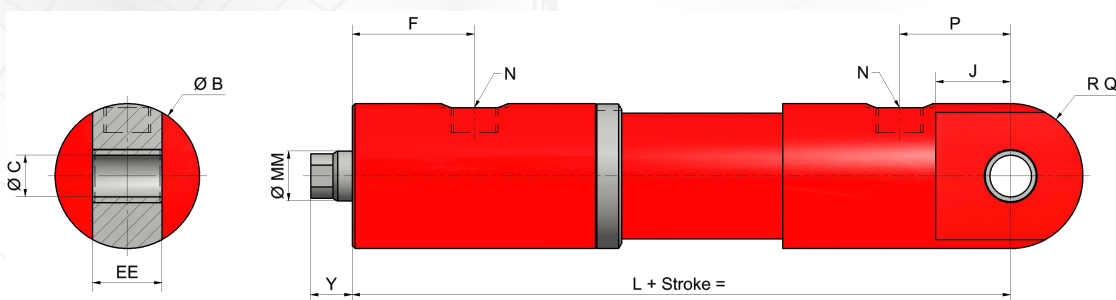
Bore Ø		25	32	40	50	63	80	100
Ø MM (Rod Ø)		16	18	22	28	36	45	56
Ø B		45	52	65	72	90	115	138
C		80	100	120	135	170	215	230
Ø D		11	13	17	17	20	22	25
E		60	70	85	100	130	165	180
F		41	44	50	53	70	85	92
J		11	14	16	20	25	35	35
L+Stroke ± 1mm	L1	98	110	120	138	154	177	189
	L2	134	156	173	188	197	227	247
	L3	116	133	147	161	180	207	224
	L4	116	133	147	161	171	197	212
N		1/4"Gaz	3/8"Gaz	3/8"Gaz	1/2"Gaz	1/2"Gaz	1/2"Gaz	1/2"Gaz
P		10	13	13	20	15	20	20
Q		32	38	50	60	75	90	105
RS		25	30	32	35	48	60	70
T		10	12	14	20	25	30	35
U		24	30	35	40	50	60	70
V		46	49	61	70	85	100	125
W min		100	110	115	125	150	180	195
W max		W mini + Course						
X		20	20	25	25	30	30	40
Y		11	15	18	20	20	25	25
Z		57	68	82	95	123	150	175
Minimum Stroke		35	45	40	45	40	60	60
Option P Min Stroke		65	70	70	70	80	100	110

HM250 Series

MP5 Mounting



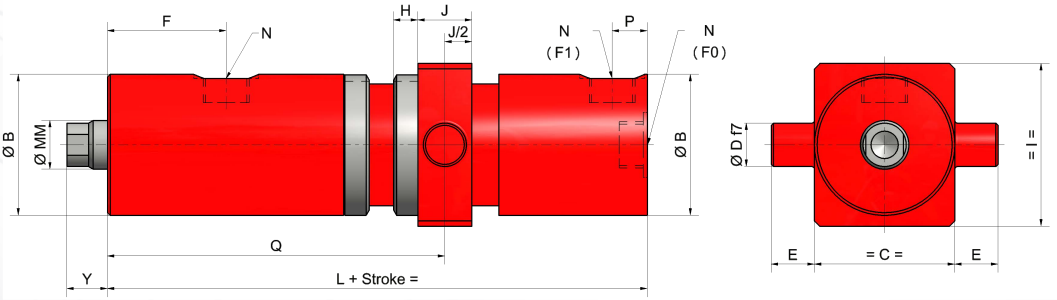
MP1 Mounting



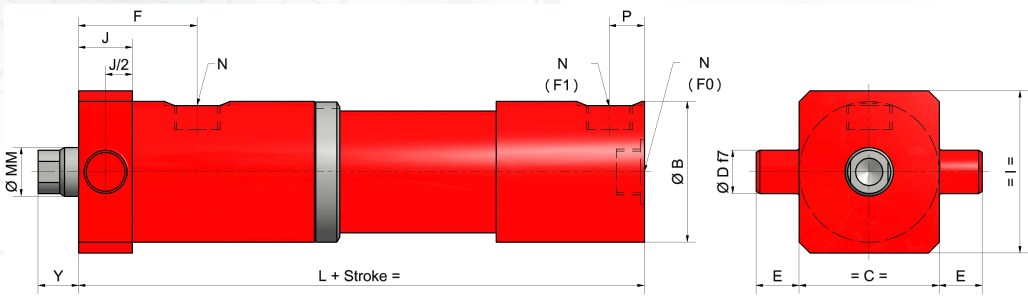
Bore Ø	25	32	40	50	63	80	100
Ø MM (Rod Ø)	16	18	22	28	36	45	56
Ø B	45	52	65	72	90	115	138
Ø C	15	17	20	25	30	40	50
D	9	10	12	16	18	22	28
E	12	14	16	20	22	28	35
EE	25	25	30	40	50	60	80
F	41	44	50	53	70	85	92
J	24	27	32	38	46	55	68
L+Stroke ± 1mm	L1	122	137	152	171	200	257
	L2	158	183	205	226	243	315
	L3	140	160	179	199	226	292
	L4	140	160	179	199	217	280
N	1/4"Gaz	3/8"Gaz	3/8"Gaz	1/2"Gaz	1/2"Gaz	1/2"Gaz	1/2"Gaz
P	34	40	45	53	61	75	88
	22,5	26	29	36	45	57,5	69
Y	11	15	18	20	20	25	25
Minimum Stroke	35	45	40	45	40	60	60

All dimensions are in mm

■ MT4 Mounting



■ MT1 Mounting

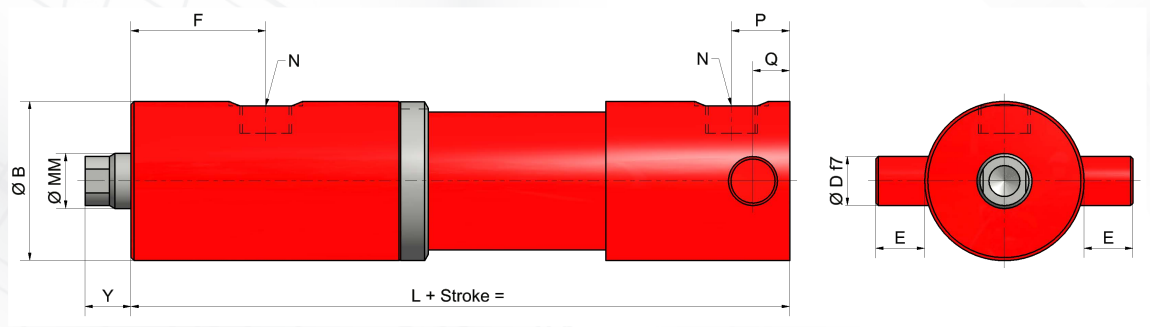


Bore Ø		25	32	40	50	63	80	100
Ø MM (Rod Ø)		16	18	22	28	36	45	56
Ø B		45	52	65	72	90	115	138
C		47	52	62	72	90	115	138
Ø D		14	16	20	25	30	40	50
E		15	16	21	26	30	40	50
F		41	44	50	53	70	85	92
H		8	8	9	11	11	12	12
I		45	60	62	75	90	115	140
J		16	20	30	30	38	48	58
L+Stroke ± 1mm	L1	98	110	120	138	154	177	189
	L2	134	156	173	188	197	227	247
	L3	116	133	147	161	180	207	224
	L4	116	133	147	161	171	197	212
N		1/4"Gaz	3/8"Gaz	3/8"Gaz	1/2"Gaz	1/2"Gaz	1/2"Gaz	1/2"Gaz
P		10	13	13	20	15	20	20
Q min		110	115	125	135	170	190	205
Q max		Q mini + Course						
Y		11	15	18	20	20	25	25
Minimum Stroke		35	45	40	45	40	60	60
OPTION Q Min Stroke		75	75	80	85	120	125	140

All dimensions are in mm

HM250 Series

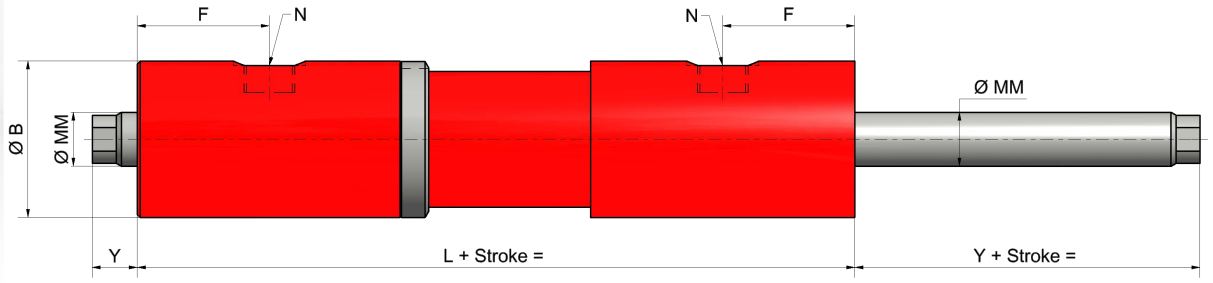
■ MT2 Mounting



Bore Ø		25	32	40	50	63	80	100
Ø MM (Rod Ø)		16	18	22	28	36	45	56
Ø B		45	52	65	72	90	115	138
Ø D		14	16	20	25	30	40	50
E		15	16	21	26	30	40	50
F		41	44	50	53	70	85	92
L+Stroke ± 1mm	L1	108	115	125	143	177	197	216
	L2	144	161	178	198	220	260	286
	L3	126	138	151	170	203	227	251
	L4	126	138	151	170	194	230	251
N		1/4"Gaz	3/8"Gaz	3/8"Gaz	1/2"Gaz	1/2"Gaz	1/2"Gaz	1/2"Gaz
P	L1-L3	19	19	18	27	35	26	32
	L2-L4	19	19	18	27	35	52	61
Q		11	12	15	18	20	26	32
Y		11	15	18	20	20	25	25
Minimum Stroke		35	45	40	45	40	60	60

All dimensions are in mm

Double Rod Cylinder



Bore $\varnothing$		25	32	40	50	63	80	100
$\varnothing \text{ MM (Rod } \varnothing)$		16	18	22	28	36	45	56
$\varnothing B$		45	52	65	72	90	115	138
F		41	44	50	53	70	85	92
L+Stroke $\pm 1\text{mm}$	L1	128	139	157	169	212	245	259
	L2	164	185	210	224	264	305	329
	L3	146	162	183	196	238	275	294
	L4	146	162	183	196	238	275	294
N		1/4"Gaz	3/8"Gaz	3/8"Gaz	1/2"Gaz	1/2"Gaz	1/2"Gaz	1/2"Gaz
Y		11	15	18	20	20	25	25
Minimum Stroke		35	50	40	45	40	60	70

All dimensions are in mm

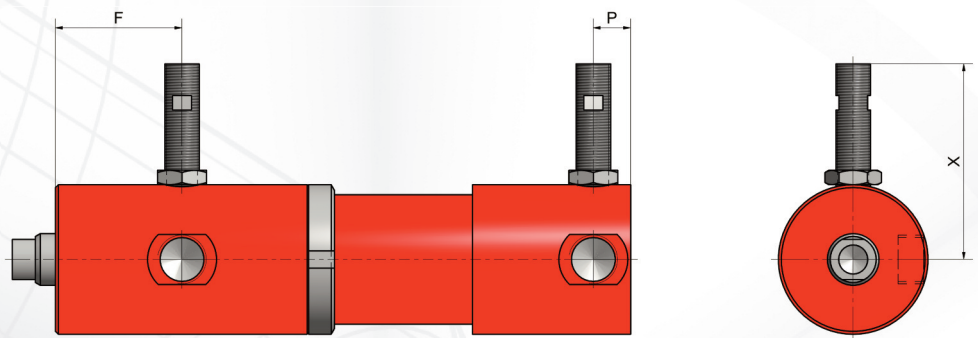
Available only for the following mounting types:

- MX9
- MX5
- ME5
- MS2
- MT4
- MT1

SERIE HM250

INDUCTIVE DETECTION

SERVICE PRESSURE , 160 BAR MAXIMUM



Bore Ø	25	32	40	50	63	80	100
X	67	68	70	75	80	85	90

Note : For all type HM 250 cylinders with inductif sensors is required a minimum stroke of 15 mm.
Service Temperature from -25 to +80 °C

TECHNICAL CHARACTERISTICS OF THE INDUCTIF SENSOR

PNP
Contact on closing / positive communication

1 Brown
4 Black
3 Blue

Operating Tension U_b	Bore Ø 25 à 40	Bore Ø 50 à 80
Drop Tension U_d	10...30 V DC	10...30 V DC
Nominal Insulation Tension U_i	2 V	1,5 V
Nominal Current I_e	75 V DC	75 V DC
Resistance on exit R_o	200 mA	200 mA
Protection against polarity inversion	150 kΩ	33 kΩ
Protection agaist short-circuits	Yes	Yes
Protection against interversion	Yes	Yes
Communication frequency max.	Yes	Yes
Operating Temperature T_a	2 kHz	1 kHz
Protection Class according CEI 60529	-25 ...+ 80 °C	-25 ...+ 80 °C
Homologation	IP 68 acc BWN PR. 20	IP 68 acc BWN PR. 20
Housing Material	CE	CE
Connection	Stainless Steel	Stainless Steel
	Connector M12, 4 poles	Connector M12, 4 poles

Elbow Connector - 3 m of cable casted in the mass

M 12 x 1
27
31
12
Brown
Black
Blue

LED Yellow : Indicator Detection

Green : Indicates Tension

How to order

SerieS	Cylinder		HM250
Bore Ø	Indicate diameter in mm 25, 32, 40, 50, 63, 80, 100		***
Rod	Simple Rod		S
	Double Rod		DT
Mounting	Indicate Mounting Type		MX9
			MX5
			ME5
			ME6
			MS2
			MP1
			MP5
			MT1
			MT2
			MT4
Rod End	Exterior Thread	Metric	Am
		Thin	Af
	Interior Thread		B
			T
Sealings	Standard Seals, +80° max		1
	Viton Seals, +200° max		9
	Water-glycol, +90° max		7
Cushioning Type	Non Cushioned		L1
	Front and Rear Cushioning		L2
	Front Cushioning		L3
	Rear Cushioning		L4
Modification	Indicate all modification		S
Stroke	Indicate real stroke in mm		***
Bottom Feeding	Indicate feeding position on the back		F0
	(F0) impossible for ME6, MP5 and all the inductifs		F1

OPTIONS UNDER REQUEST

Inductif	Sensor	Indicate	D
Option P for MS2		Indicate	P
Dim W for MS2		Indicate dim in mm	W=***
Dim Q for MT4		Indicate dim in mm	Q=***

EXAMPLE

SerieS	Bore Ø	Rod	Mounting	Rod End	Sealings	Cushioning	Modification	Stroke	Oil Feeding	Option
HM250	40	S	ME6	B	9	L1	S	250	F1	D



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