

Hydraulic Cylinders

Double Acting



R160M Series

Standard ISO 6020/1

ISO Seals

Maximum Service Pressure : 250 bar

Bore : Ø25 à 200 mm





R160M Series

GENERAL CHARACTERISTICS

- Service Pressure : 90 - 250 bar max
- Test Pressure : 375 bar
- Fluids : Hydraulic Mineral Oil HM-HL HLP.HV
10 to 40 Cst at 50 °C
Non inflammable fluids class C or D
- Temperature : from -20 to +80 °C : Seals Type N
up to +200 °C : Seals Type V
Water-glycol max 90 °C : Seals Type G
- Movement Speed : 0.5 m/sec max
- Filtration : Oil pollution according NAS 1638
Classe 9-10 achievable with filter β25=75
- Viscosity : 12 to 90 mm²/s
- Cushioning : Adjustable Front and Rear

MAXIMUM SPEED :

Bore Ø	25	32	40	50	63	80	100	125	160	200
Rod Ø	14 18	18 22	22 28	28 36	36 45	45 56	56 70	70 90	90 110	110 140
Seals Type N (m/s)	0,5				0,4		0,25			
Seals Type V (m/s)	1						0,7			
Seals Type G (m/s)	0,5				0,4		0,25			

FORCES

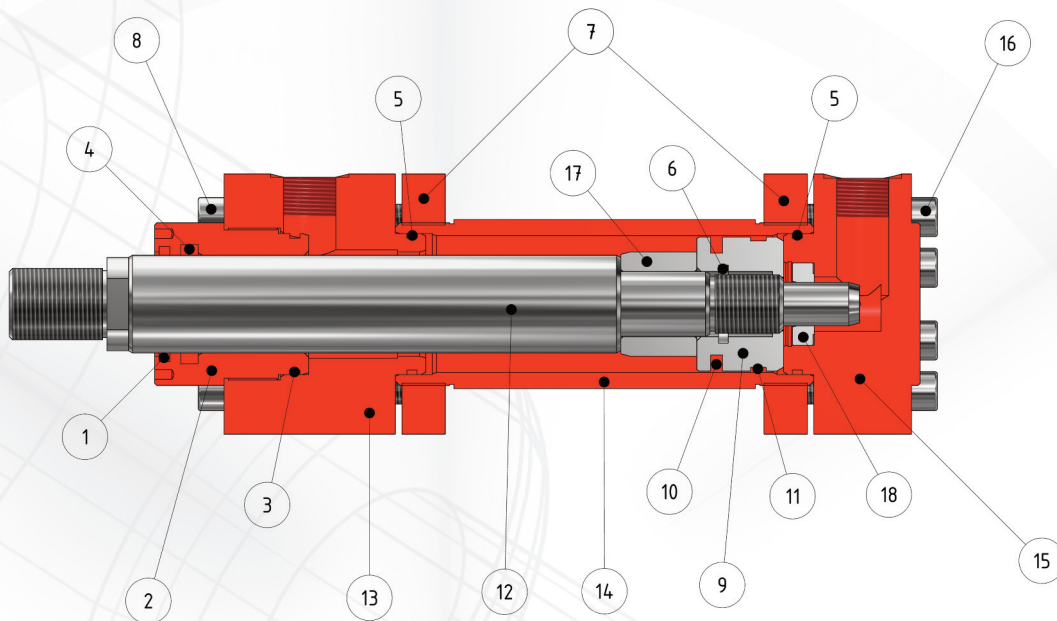
- Forces developed while pushing (daN)

Bore Ø	Section cm ²	Rod Ø	Annular Section cm ²	Pushing Force daN at 160 bar	Traction Force daN at 160 bar
25	4,91	14	3,37	785	539
		18	2,36		377
32	8,04	18	5,50	1 286	880
		22	4,24		678
40	12,56	22	8,76	2 009	1 401
		28	6,41		1 025
50	19,63	28	13,47	3 140	2 155
		36	9,46		1 513
63	31,17	36	20,99	4 987	3 358
		45	15,27		2 243
80	50,26	45	34,36	8 040	5 497
		56	25,63		4 100
100	78,54	56	53,91	12 565	8 625
		70	40,06		6 409
125	122,72	70	84,24	19 635	13 478
		90	59,10		9 456
160	201,06	90	137,44	32 169	21 990
		110	106,03		16 964
200	314,16	110	219,13	50 265	35 060
		140	160,22		25 635

All dimensions are in mm

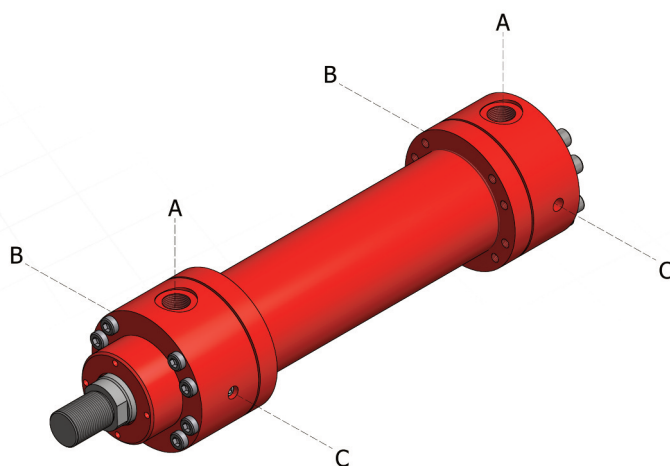
R160M Series

CONSTRUCTION CHARACTERISTICS



Item	Designation	Item	Designation
1	Wiper Seal	10	Piston Composed
2	Guide	11	Seal Piston Guide
3	Guide O Ring	12	Rod
4	Rod Seal	13	Head
5	Body O Ring	14	Body
6	Piston O Ring	15	Bottom
7	Counter Flanges	16	Bottom Screw
8	Head Screw	17	Front Cushioning Ring
9	Piston	18	Rear Cushioning Ring

PORT LOCATION

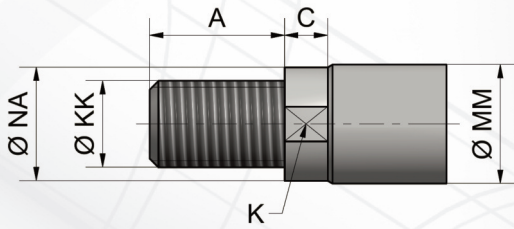


- A = Oil Feeding
- B = Cushioning Screw
- C = Purge Screw

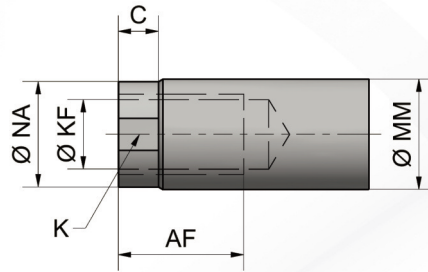
R160M Series

ROD END

Exterior Thread (codeF)



Internal Thread (codeT)

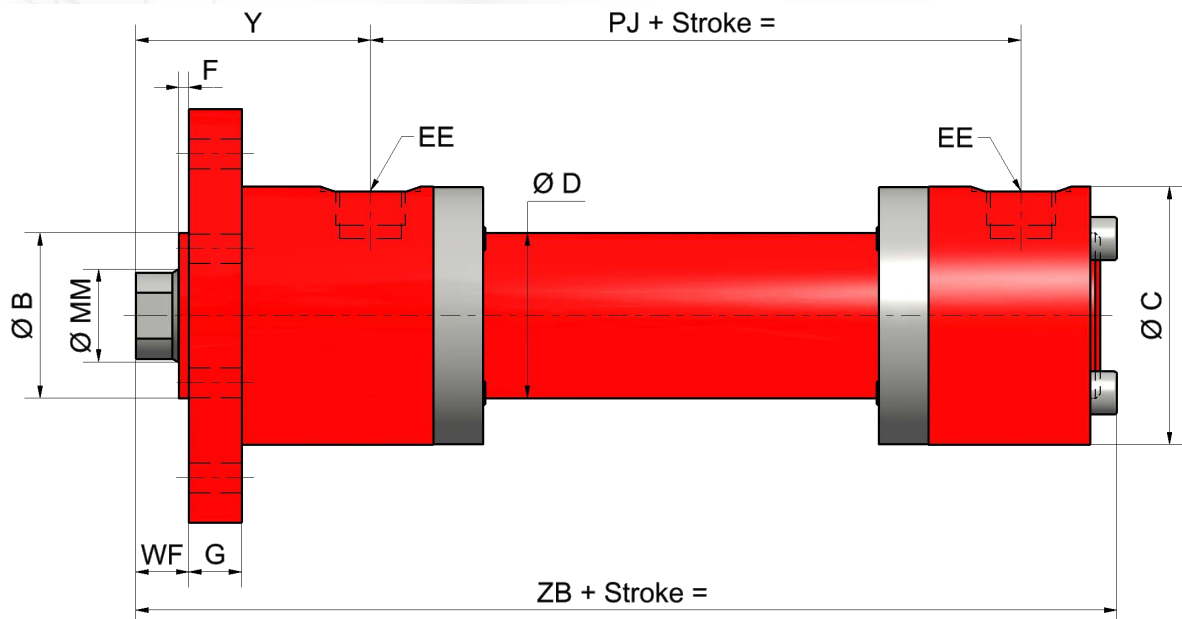


Bore Ø	Ø MM	A & AF	C	K	Ø NA	Ø KK	Ø KF
25	14	16	9	12	13	M12x1,25	M10x1,25
	18	18	9	15	17	M14x1,5	M12x1,5
32	18	18	10	15	17	M14x1,5	M12x1,5
	22	22	11	18	21	M16x1,5	M16x1,5
40	22	22	11	18	21	M16x1,5	M16x1,5
	28	28	11	22	26	M20x1,5	M20x1,5
50	28	28	10	22	26	M20x1,5	M20x1,5
	36	36	10	30	34	M27x2	M27x2
63	36	36	11	30	34	M27x2	M27x2
	45	45	12	39	43	M33x2	M33x2
80	45	45	12	39	43	M33x2	M33x2
	56	56	12	48	54	M42x2	M42x2
100	56	56	12	48	54	M42x2	M42x2
	70	63	15	62	68	M48x2	M48x2
125	70	63	15	62	68	M48x2	M48x2
	90	85	17	80	88	M64x3	M64x3
160	90	85	17	80	88	M64x3	M64x3
	110	95	19	100	108	M80x3	M80x3
200	110	95	25	100	108	M80x3	M80x3
	140	112	25	128	138	M100x3	M100x3

All dimensions are in mm

R160M Series

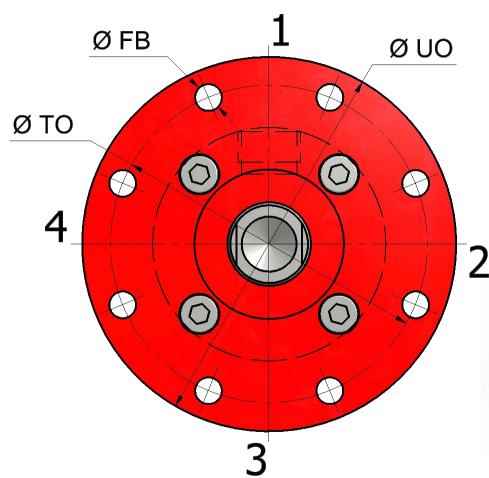
MF3 Mounting - FRONTAL ROUND FLANGE



Bore Ø	25		32		40		50		60
Ø MM (Rod Ø)	14	18	18	22	22	28	28	36	36
Ø B	32		40		50		60		70
Ø C	56		67		78		95		110
Ø D	35		42		50		60		70
EE	1/4" G		3/8" G		1/2" G		1/2" G		3/4"
F	3		3		3		4		4
Ø FB	6,6		9		9		11		13
G	12		16		16		20		20
PJ	77		89		97		111		111
Ø TO	75		92		106		126		140
Ø UO	90		110		125		148		170
WF	16		16		16		18		20
Y	58		64		71		72		80
ZB	155		176		198		213		230

Toutes les cotes sont en mm

R160M Series

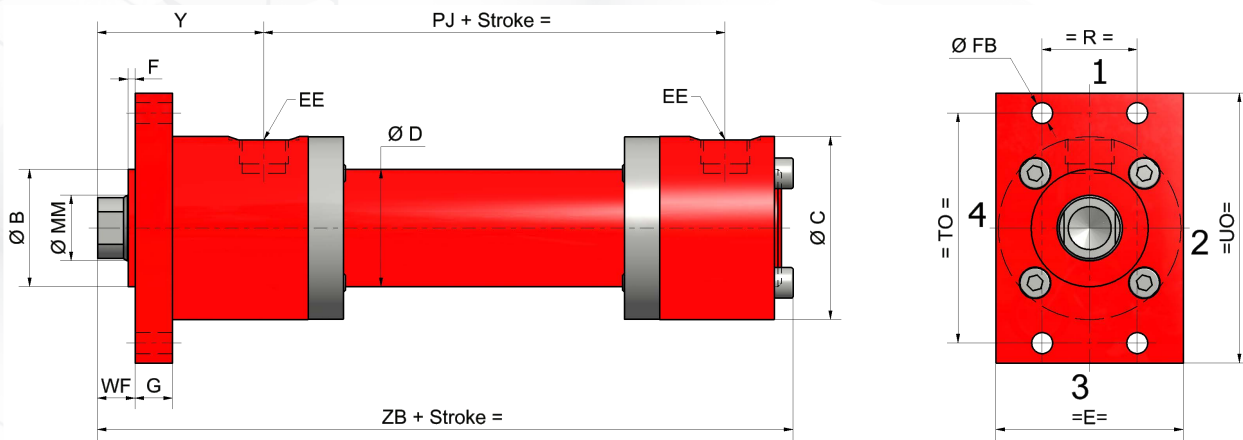


	63	80	100	125	160	200					
6	45	45	56	56	70	70	90	90	110	110	140
	70	85	106	132	160	200					
	116	130	158	192	232	285					
	73	95	115	145	185	230					
	3/4" G	3/4" G	1" G	1" G	1" 1/4 G	1" 1/4 G					
	4	4	5	5	5	5					
	13,5	17,5	22	22	22	26					
	25	32	32	32	36	40					
	117	134	162	174	191	224					
	145	165	200	235	280	340					
	170	195	238	272	316	385					
	20	22	25	28	30	35					
	82	91	108	121	143	190					
	234	260	310	335	380	474					



R160M Series

MF1 Mounting - FRONTAL RECTANGULAR FLANGE



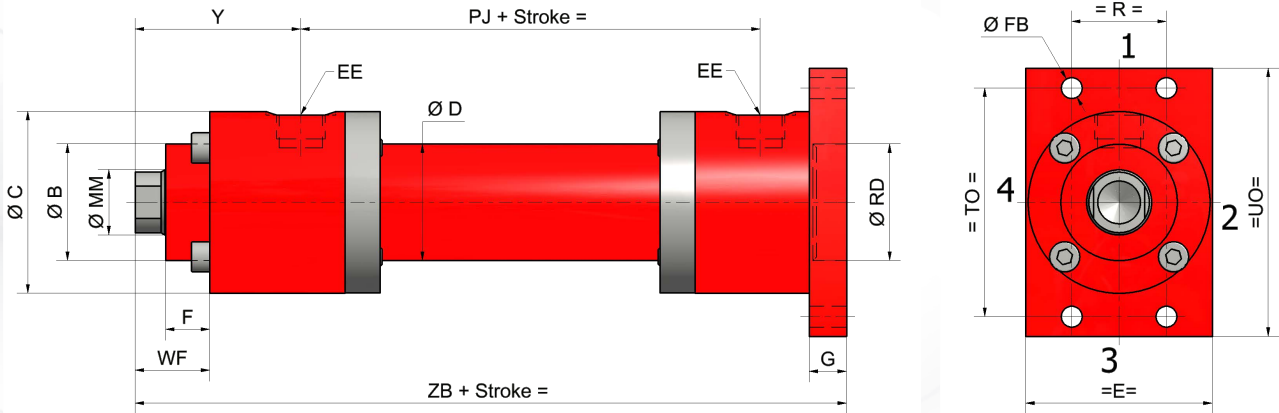
Bore Ø	25		32		40		50		63		80		100		125	
Ø MM (Rod Ø)	14	18	18	22	22	28	28	36	36	45	45	56	56	70	70	90
Ø B	32		40		50		60		70		85		106		132	
Ø C	56		67		78		95		116		130		158		192	
Ø D	35		42		50		60		73		95		115		145	
E	60		70		80		100		120		135		160		195	
EE	1/4" G		3/8" G		1/2" G		1/2" G		3/4" G		3/4" G		1" G		1" G	
F	3		3		3		4		4		4		5		5	
Ø FB	6,6		9		9		11		13,5		17,5		22		22	
G	12		16		16		20		25		32		32		32	
PJ	77		89		97		111		117		134		162		174	
R	28,7		35,2		40,6		48,2		55,5		63,1		76,5		90,2	
TO	69,2		85		98		116,4		134		152,5		184,8		217,1	
UO	85		105		115		140		160		185		225		255	
WF	16		16		16		18		20		22		25		28	
Y	58		64		71		72		82		91		108		121	
ZB	155		176		198		213		234		260		310		335	

All dimensions are in mm



R160M Series

■ FIXATION MF2 - REAR RECTANGULAR FLANGE

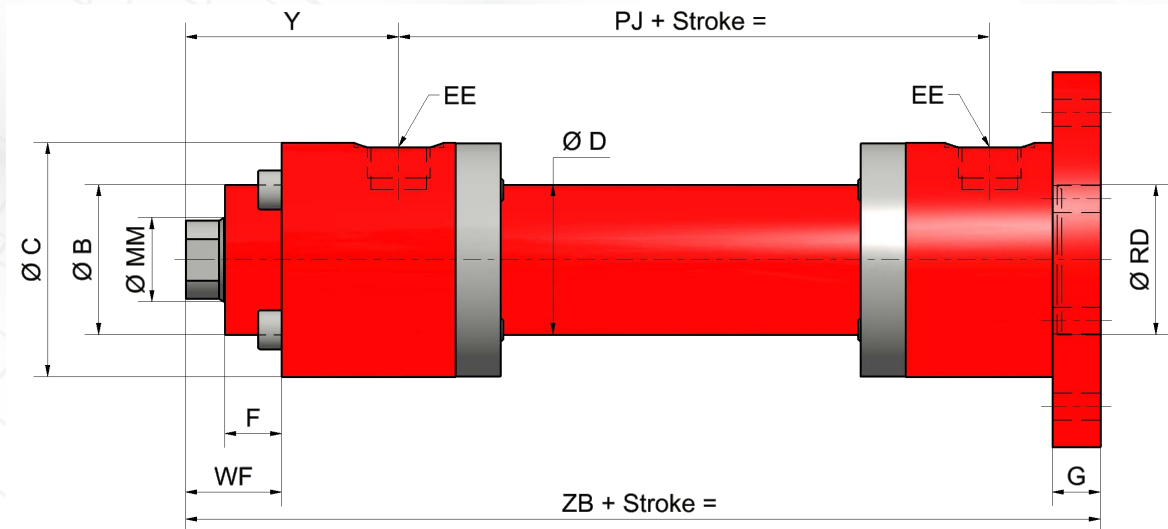


Bore Ø	25		32		40		50		63		80		100		125	
Ø MM (Rod Ø)	14	18	18	22	22	28	28	36	36	45	45	56	56	70	70	90
Ø B	32		40		50		60		70		85		106		132	
Ø C	56		67		78		95		116		130		158		192	
Ø D	35		42		50		60		73		95		115		145	
E	60		70		80		100		120		135		160		195	
EE	1/4" G		3/8" G		1/2" G		1/2" G		3/4" G		3/4" G		1" G		1" G	
F	15		19		19		24		29		36		37		37	
Ø FB	6,5		9		9		11		13,5		17,5		22		22	
G	12		16		16		20		25		32		32		32	
PJ	77		89		97		111		117		134		162		174	
R	28,7		35,2		40,6		48,2		55,5		63,1		76,5		90,2	
Ø RD	32		40		50		60		70		85		106		132	
TO	69,2		85		98		116,4		134		152,5		184,8		217,1	
UO	85		105		115		140		160		185		225		255	
WF	28		32		32		38		45		54		57		60	
Y	58		64		71		72		82		91		108		121	
ZB	162		186		206		223		249		282		332		357	

All dimensions are in mm

R160M Series

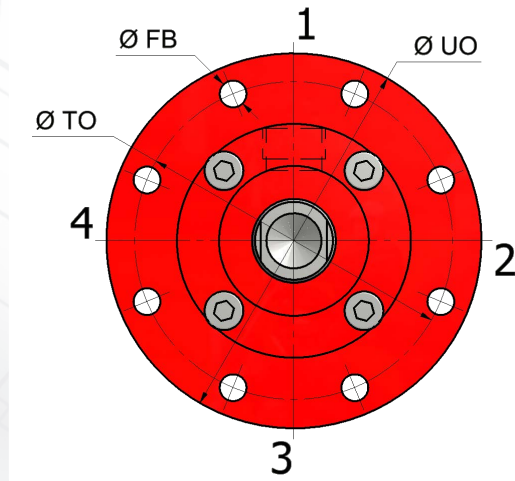
MF4 Mounting - REAR ROUND FLANGE



Bore Ø	25		32		40		50		60
Ø MM (Rod Ø)	14	18	18	22	22	28	28	36	36
Ø B	32		40		50		60		70
Ø RD	32		40		50		60		70
Ø C	56		67		78		95		110
Ø D	35		42		50		60		70
EE	1/4" G		3/8" G		1/2" G		1/2" G		3/4" G
F	15		19		19		24		28
Ø FB	6,6		9		9		11		13
G	12		16		16		20		24
PJ	77		89		97		111		126
Ø TO	75		92		106		126		148
Ø UO	90		110		125		148		170
WF	28		32		32		38		44
Y	58		64		71		72		80
ZB	162		186		206		223		250

All dimensions are in mm

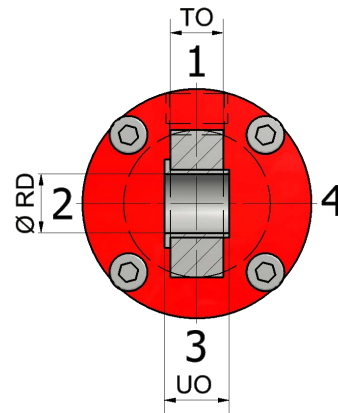
R160M Series



	63	80	100	125	160	200					
6	45	45	56	56	70	70	90	90	110	110	140
	70	85	106	132	160	200					
	70	85	106	132	160	200					
	116	130	158	192	232	285					
	73	95	115	145	185	230					
	3/4" G	3/4" G	1" G	1" G	1" 1/4 G	1" 1/4 G					
	29	36	37	37	41	45					
	13,5	17,5	22	22	22	26					
	25	32	32	32	36	40					
	117	134	162	174	191	224					
	145	165	200	235	280	340					
	170	195	238	272	316	385					
	45	54	57	60	66	75					
	82	91	108	121	143	190					
	249	282	332	357	406	490					

R160M Series

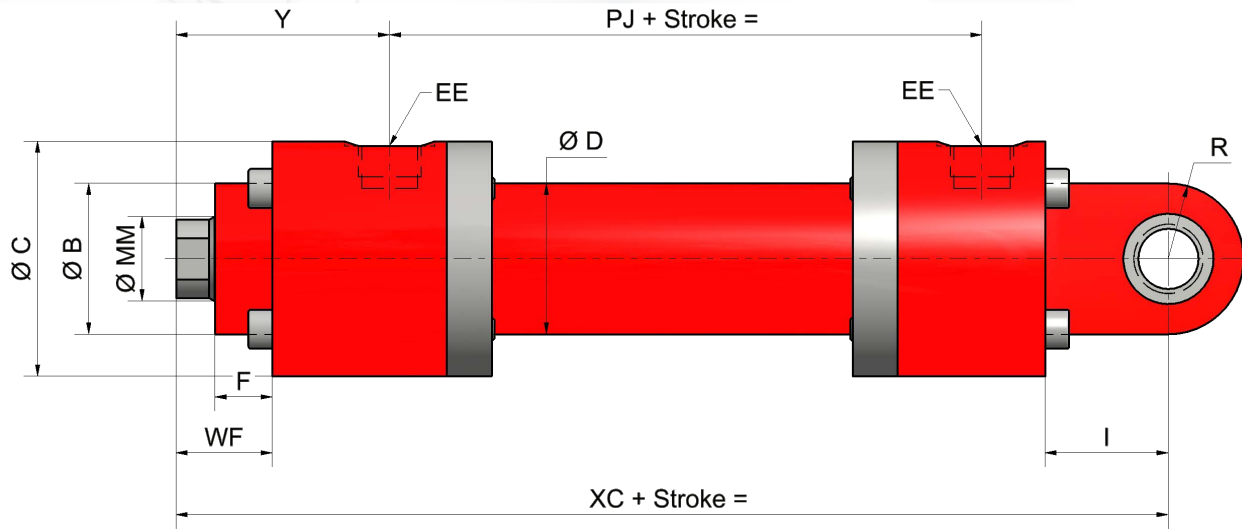
■ MP3 Mounting - REAR UNTHREADED HOLE TENON



Bore Ø	25		32		40		50		60
Ø MM (Rod Ø)	14	18	18	22	22	28	28	36	36
Ø B	32		40		50		60		70
Ø C	56		67		78		95		110
Ø D	35		42		50		60		70
EE	1/4" G		3/8" G		1/2" G		1/2" G		3/4"
F	15		19		19		24		28
I	23		30		33		42		50
PJ	77		89		97		111		130
R	16		20		25		32		40
Ø RD	12		16		20		25		30
TO	10,6		14		18		22		28
UO	12		16		20		25		30
WF	28		32		32		38		45
Y	58		64		71		72		80
XC	178		206		231		257		280

All dimensions are in mm

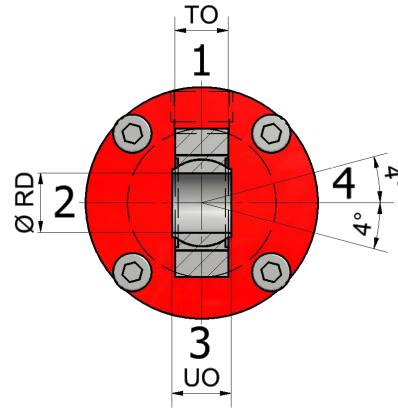
R160M Series



	63	80	100	125	160	200					
6	45	45	56	56	70	70	90	90	110	110	140
	70	85	106	132	160	200					
	116	130	158	192	235	285					
	73	95	115	145	185	230					
	3/4" G	3/4" G	1" G	1" G	1" 1/4 G	1" 1/4 G					
	29	36	37	37	41	45					
	53	72	83	89	117	141					
	117	134	162	174	191	224					
	40	50	63	71	90	112					
	32	40	50	63	80	100					
	27	35	40	52	66	84					
	32	40	50	63	80	100					
	45	54	57	60	66	75					
	82	91	108	121	143	190					
	289	332	395	428	505	615					

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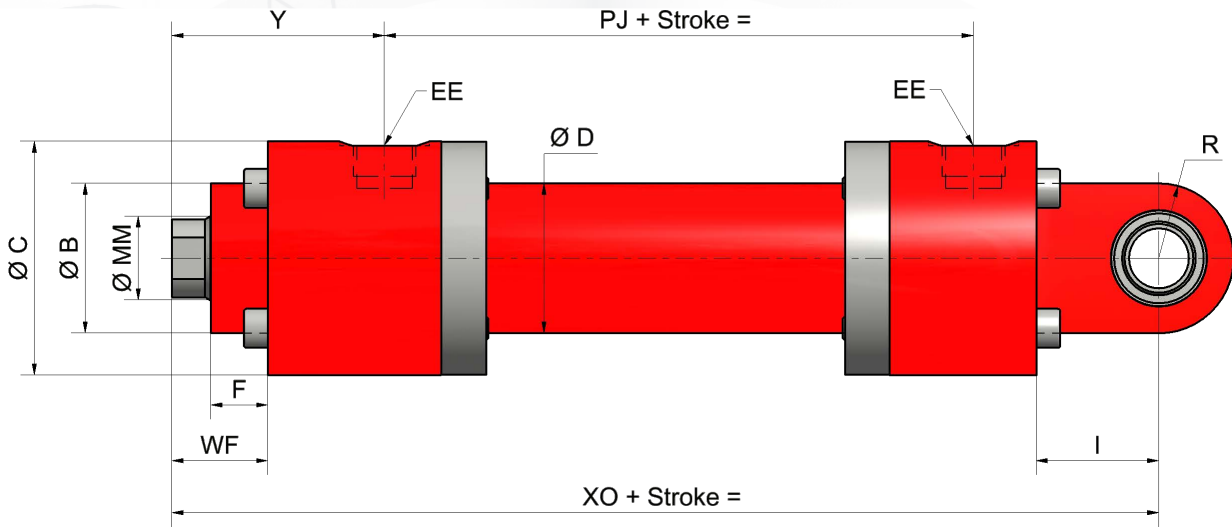
■ MP5 Mounting - REAR BALL JOINT TENON



Bore Ø	25		32		40		50		6
Ø MM (Rod Ø)	14	18	18	22	22	28	28	36	36
Ø B	32		40		50		60		7
Ø C	56		67		78		95		1
Ø D	35		42		50		60		7
EE	1/4" G		3/8" G		1/2" G		1/2" G		3
F	15		19		19		24		4 2
I	23		30		33		42		5
PJ	77		89		97		111		1
R	16		20		25		32		4
Ø RD	12		16		20		25		3
TO	10,6		14		18		22		2
UO	12		16		20		25		3
WF	28		32		32		38		4
Y	58		64		71		72		8
XO	178		206		231		257		2

All dimensions are in mm

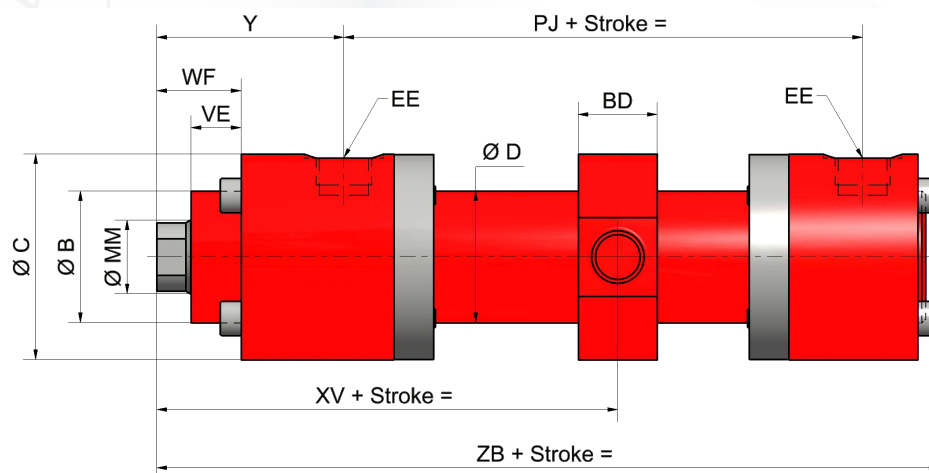
R160M Series



	63	80	100	125	160	200					
6	45	45	56	56	70	70	90	90	110	110	140
	70	85	106	132	160	200					
	116	130	158	192	235	285					
	73	95	115	145	185	230					
	3/4" G	3/4" G	1" G	1" G	1" 1/4 G	1" 1/4 G					
	29	36	37	37	41	45					
	53	72	83	89	117	141					
	117	134	162	174	191	224					
	40	50	63	71	90	112					
	32	40	50	63	80	100					
	27	35	40	52	66	84					
	32	40	50	63	80	100					
	45	54	57	60	66	75					
	82	91	108	121	143	190					
	289	332	395	428	505	615					

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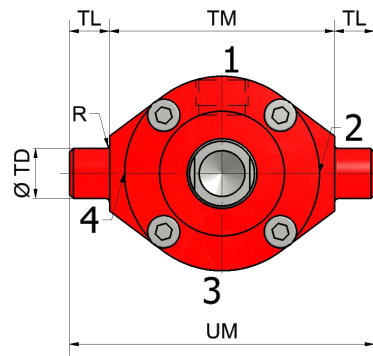
■ MT4 Mounting - MIDDLE LOCATED TRUNNIONS



Bore Ø	25		32		40		50		60
Ø MM (Rod Ø)	14	18	18	22	22	28	28	36	36
Ø B	32		40		50		60		70
BD	20		25		30		35		40
Ø C	56		67		78		95		110
Ø D	35		42		55		65		75
EE	1/4" G		3/8" G		1/2" G		1/2" G		3/4"
PJ	77		89		97		111		125
R	1		1		1,5		1,5		2
Ø TD	12		16		20		25		30
TL	10		12		16		20		25
TM	63		75		90		105		120
UM	83		99		122		145		170
VE	15		19		19		24		28
WF	28		32		32		38		45
XV mini	107		120		135		145		160
XV + Course	75		85		90		100		110
Y	58		64		71		72		80
ZB	155		176		198		213		230
Course mini	40		40		45		50		55

Toutes les cotes sont en mm

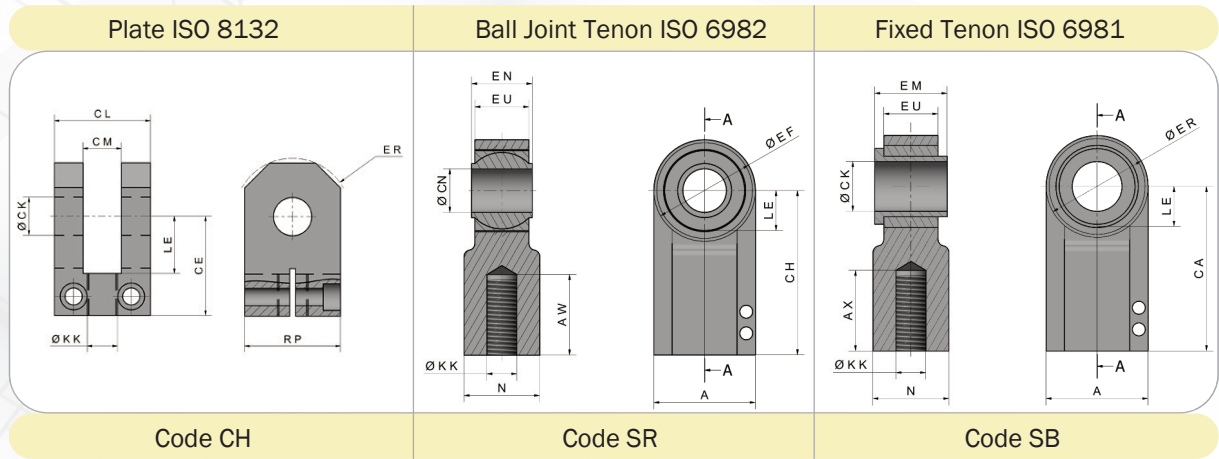
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63	80		100		125		160		200	
45	45	56	56	70	70	90	90	110	110	140
70	85		106		132		160		200	
45	50		60		75		90		110	
116	130		158		192		232		285	
78	100		120		150		190		230	
3/4" G	3/4" G		1" G		1" G		1" 1/4 G		1" 1/4 G	
117	134		162		174		191		224	
2	2,5		2,5		3		3		3	
32	40		50		63		80		100	
25	32		40		50		63		80	
120	135		160		195		240		295	
170	199		240		295		366		455	
29	36		37		37		41		45	
45	54		57		60		66		75	
165	180		215		240		280		350	
107	125		150		160		177		235	
82	91		108		121		143		190	
234	260		310		335		380		474	
55	60		70		80		103		115	

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ACCESSORIES



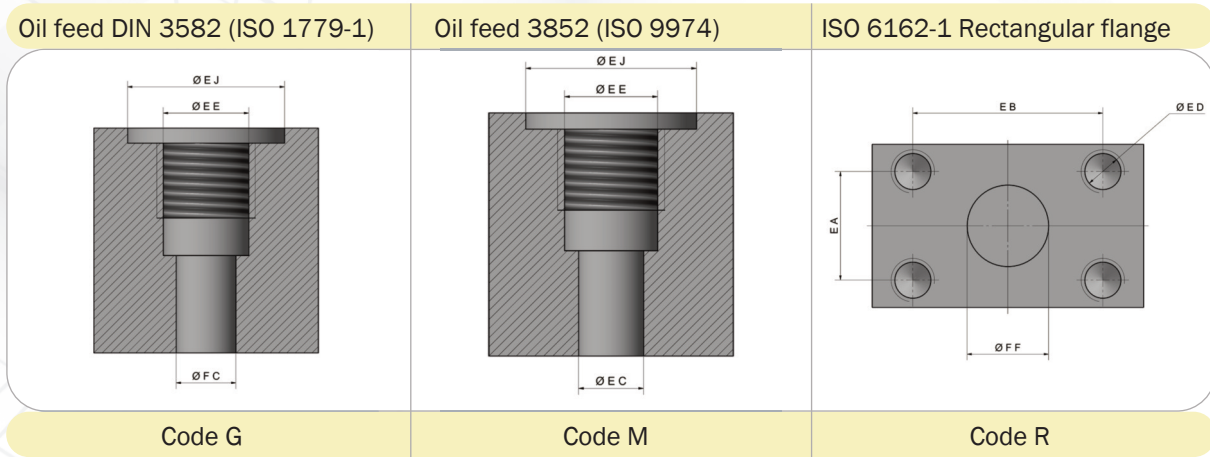
Code CH	CODIFICATION FOR PLATE ISO 8132									
	CH 12	CH 16	CH 20	CH 25	CH 32	CH 40	CH 50	CH 63	CH 80	
RodØ	14	18	22	28	36	45	56	70	90	
CE	38	44	52	65	80	97	120	140	180	
Ø CK	12	16	20	25	32	40	50	63	80	
CL	28	36	45	56	70	90	110	140	170	
CM	12	16	20	25	32	40	50	63	80	
ER	16	20	25	32	40	50	63	71	90	
Ø KK	M12x1,25	M14x1,5	M16x1,5	M20x1,5	M27x2	M33x2	M42x2	M48x2	M64x3	
LE	18	22	27	34	42	52	64	75	94	
RP	25	30	40	50	65	80	100	140	180	

Code SR	CODIFICATION FOR BALL JOINT TENON (ISO 6982)									
	SR 012	SR 016	SR 020	SR 025	SR 032	SR 040	SR 050	SR 063	SR 080	SR 100
Code SB	CODIFICATION FOR FIXED TENON (ISO 6981)									
	SB 012	SB 016	SB 020	SB 025	SB 032	SB 040	SB 050	SB 063	SB 080	SB 100
Rod Ø	14	18	22	28	36	45	56	70	90	110
A	32	40	47	54	66	80	96	114	148	178
AX/AW	17	19	23	29	37	46	57	64	86	96
CA/CH	38	44	52	65	80	97	120	140	180	210
Ø CK/Ø CN	12	16	20	25	32	40	50	63	80	100
Ø EF/Ø ER	16	20	23,5	29	35	44,5	54	71	90	112
EM/EN	12	16	20	25	32	40	50	63	80	100
EU Ø	11	13	17	21	27	32	40	52	66	84
KK	M12x1,25	M14x1,5	M16x1,5	M20x1,5	M27x2	M33x2	M42x2	M48x2	M64x3	M80x3
LE/LF	14	18	22	27	32	41	50	62	78	98
N	17	21	25	30	38	47	58	70	90	110

All dimensions are in mm

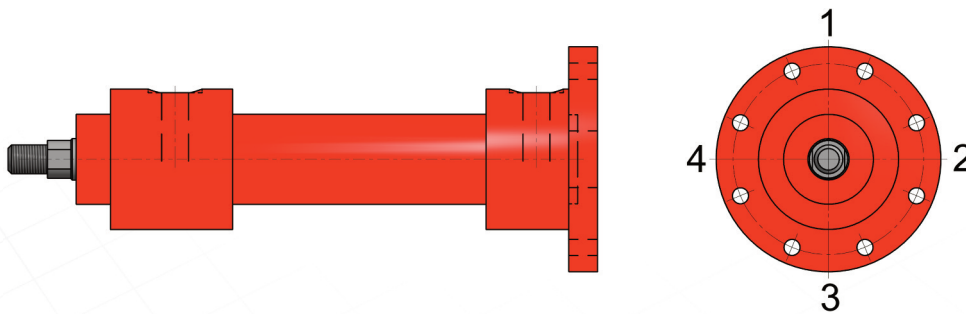
R160M Series

OIL FEEDING AND CONNECTION TYPE ISO 6020-1



Codes			G			M			R				
Bore Ø	Cylinder Bottom Flow l/min	Rod Speed in m/s	Ø EE	Ø FC	Ø EJ	Ø EE	Ø EC	Ø EJ	Nominal Ø of flange DN	FF max	EA	EB	Ø ED
25	11,5	0,39	1/4" G	8	25	M14x1,5	8	25	-	-	-	-	-
32	11,5	0,24	3/8" G	12	28	M18x1,5	12	28	-	-	-	-	-
40	23,5	0,31	1/2" G	14	34	M22x1,5	14	34	-	-	-	-	-
50	40	0,34											
63	40	0,21	3/4" G	18	42	M27x2	18	42	13	12,7	17,5	38,1	M8x1,25
80	53	0,18											
100	53	0,11	1" G	23	47	M33x2	23	47	19	19,1	22,3	47,6	M10x1,5
125	85	0,12											
160	85	0,07	1/41"G	30	58	M42x2	30	58	25	25,4	26,2	52,4	M10x1,5
200	136	0,07											

OIL FEEDING PORT LOCATION



Possible Positions		
Mounting	Head	Bottom
MF3, MF1, MF2, MF4, MP3, MP5, MT4	1, 2, 3 ou 4	1, 2, 3 ou 4



HOW TO ORDER

Series		Cylinder	R160M
Bore Ø		Indicate diameter in mm 25, 32, 40, 50, 63, 80, 100, 125, 160, 200	***
Rod Ø		Indicate diameter in mm 14, 18, 22, 28, 36, 45, 56, 70, 90, 110, 140	***
Mounting	Simple Rod	Frontal Round Flange	MF3
		Front Rectangular Flange	MF1
		Rear Rectangular Flange	MF2
		Rear Round Flange	MF4
		Rear Tenon with Unthreaded Hole	MP3
		Rear Ball Joint Tenon	MP5
		Middle Located Trunnions	MT4
Sealings		Nitrile Seals, +80° max	N
		Viton Seals, +200° max	V
		Water-glycol, +90° max	G
Piston Seals		Double Acting Seal	D
		Composed Seal	P
Rod Sealings		Simple Seal	J
		Composed Seal	P
Cushioning Type		No Cushioning	0
		Front Cushioning	1
		Rear Cushioning	2
		Amortissement avant et arrière	3
Oil feeding ports		Thread gaz BSP/G	G
		Metrical Thread	M
		Rectangular Flange ISO 6162	R
Stroke		Indicate in mm	***
Joint for bigger strokes		Without Joint	S
		With Joint (1)	E
Rod End		Exterior Thread	F
		Interior Thread	T
		Ball Joint Tenon w/ Thread	SR
		Fixed Tenon w/ Thread	SB
		Plate with Thread	CH
Oil Feeding por position (see page21)		Head	***
		Bottom	***
Trunnion Position MT4		Indicate XV value in mm	XV =

Nota (1) : For strokes 10 times greater than bore Ø please add 1 time the bore Ø to the length
For strokes 20 times greater than bore Ø please add 2 times bore Ø to the length

OPTIONS UNDER REQUEST

Special Rods	Rod nickel + chrome (30+20 micron)	TN
	Sup Hardned Rod + chrome	TT
Detection	Inductive Sensors	CI
	Magnetorestrictive Sensor	CM

EXAMPLE

Series	Ø Bore	Ø Rod	Mouting	Sealings	Piston Sealings	Rod Sealings	Cushioning Type	Oil feed	Stroke	Joint	Rod End	Accessories	Port Location	OPTIONS
R160M	32	18	MF1	N	D	J	0	G	150	S	F	CH	1/1	TN



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