Hydraulic Cylinders
ISO 6020/1

Working Pressure up to 160 bar

BRANT HYDRAULICS

BH - 21- 0701 - EN

BRAND HYDRAULICS

Specifications

ISO6020/1

Parameter	Specification
Standard	
Style	ISO 6020/1, CETOP RP58H
Type	Flange
Rated Pressure	160 bar
Test Pressure	240 bar
Mounting Position	As desired
Construction	Head & cap bolted to heavy steel flanges
Fluid	
Fluid Style	Mineral oil or other fluids on request
Fluid Viscosity	12 to 90 cSt
Filtration	Oil contamination NAS 1638 class 9 ~10 to be met with filter $\beta_{25} = 75$

Dimension

Piston Dimension	25	32	40	50	63	80	100	125	160	200
Rod Dimension	14 18	18 22	22 28	28 36	36 45	45 56	56 70	70 90	90 110	110 140

Stroke tolerance: ISO 8135

Seal

Seal Type: -20°C to +80°C for normal seals; -20°C to +160°C for viton seals

Max. Speed(m/s) for Normal Seals	0.5	0.4
Max. Speed (m/s) for Viton Seals	1	

Cushioning

Optional: Both Ends

Length(mm)										
Front	20	20	27	29	29	31	31	31	39	45
Rear	20	20	27	30	35	35	38	43	45	50

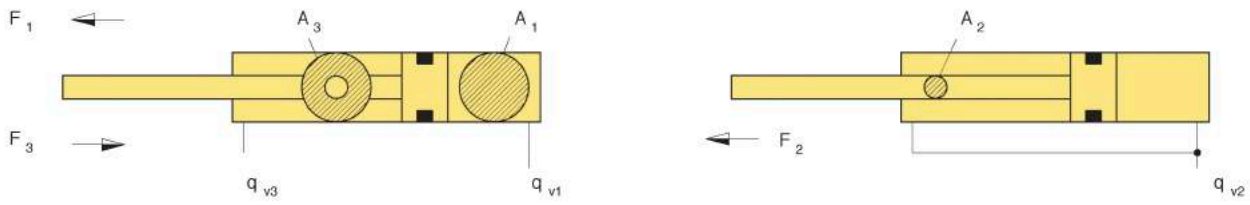
Optional Features

Air Bleeds	Available as option at both ends, air bleeds are recessed into the head cap and retained so they cannot be inadvertently removed.
Double Rod Cylinder	ISO 6020/1 series cylinders are available with the option of a double-ended piston rod. Please contact the factory for further details.
Position Measure System	Linear position transducers of various types may be fitted to ISO 6020/1 series cylinders. Please contact the factory for further details.
Position Proximity Switch	Non-contacting position switches are available for ISO 6020/1 serious cylinders. Please contact the factory for further details.

Area, Force, Flow

BRANT HYDRAULICS

Bore	Rod	Area ratio	Areas			Force at 250 bar [1]			Flow at 0,1 m/s [2]		
			Bore	Rod	Annulus	Push	Regen.	Pull	Out	Regen.	in
AL Ø mm	**MM** Ø mm	**Ø** A1/A3	**A_1** cm²	**A_2** cm²	**A_3** cm²	**F_1** kN	**F_2** kN	**F_3** kN	**q_{V1}** l/min	**q_{V2}** l/min	**q_{V3}** l/min
25	14	1,46	4,91	1,54	3,37	7,85	2,44	5,37	2,9	0,9	2,0
	18	2,08		2,54	2,36		4,07	3,76		1,5	1,4
32	18	1,46	8,04	2,54	5,50	12,80	4,07	8,78	4,8	1,5	3,3
	22	1,90		3,80	4,24		6,08	6,76		2,3	2,5
40	22	1,43	12,56	3,80	8,76	20,00	6,08	14,03	7,5	2,3	5,2
	28	1,96		6,16	6,41		9,82	10,24		3,7	3,8
50	28	1,46	19,63	6,16	13,47	31,30	9,82	21,55	11,7	3,7	8,1
	36	2,08		10,18	9,46		16,29	15,10		6,1	5,6
63	36	1,48	31,17	10,18	20,99	49,80	16,29	33,56	18,7	6,1	12,6
	45	2,04		15,90	15,27		25,40	24,41		9,5	9,2
80	45	1,46	50,26	15,90	34,36	80,30	25,40	54,96	30,2	9,5	20,7
	56	1,96		24,63	25,63		39,30	40,99		14,8	15,4
100	56	1,46	78,54	24,63	53,91	125,00	39,30	86,22	47,1	14,8	32,3
	70	1,96		38,48	40,06		61,50	64,04		23,1	24,0
125	70	1,46	122,72	38,48	84,24	196,00	61,50	134,7	73,6	23,1	50,5
	90	2,08		63,62	59,10		101,00	94,49		38,2	35,4
160	90	1,46	201,06	63,62	137,00	321,00	101,00	219,8	120,6	38,2	82,4
	110	1,90		95,06	106,00		151,00	169,5		57,0	63,6
200	110	1,43	314,16	95,06	219,09	502,6	152,00	350,6	188,5	57,0	131,5
	140	1,96		153,96	160,20		246,30	256,3		92,4	96,1
250	140	1,46	490,8	153,96	336,9	785,4	246,30	539,1	294,5	92,4	202,1
	180	2,08		254,4	236,4		407,2	378,2		152,7	141,8
320	180	1,46	804,2	254,4	549,8	1286,8	407,2	879,6	482,5	152,7	329,8
	220	1,90		380,1	424,2		608,2	678,6		228,1	254,4



Notes:

1- Theoretical force (wilhout con-sideration of efficiency).
2- Stroke velocity.

1MPa = 10 bar
1kN = 102 kp

ISO6020/1

Buckling

The permissible stroke length with a flexibly guided load and a 3.5 safety factor against buckling can be obtained from the appropriate table. With a deviating cylinder installation, the permissible stroke length has to be interpolated. Permissible stroke lengths for non-guided loads are available on request. The calculation for buckling are carried out as follows:

1. Calculation according to Euler $$F = \frac{\pi^2 \cdot E \cdot I}{\upsilon \cdot L_K^2} \quad \text{if} \lambda > \lambda g$$

2. Calculation according to Tetmajer $$F = \frac{d^2 \cdot \pi (335 - 0.62 \cdot \lambda)}{4 \cdot \upsilon} \quad \text{if} \lambda \leq \lambda g$$

Explanation:

E = Modulus of elasticity in N/mm^2 = 2.1 x 105 for steel

I = Moment of inertia in mm^4 for a circular cross-section area = $\frac{d^4 \cdot \pi}{64} = 0.0491 \bullet d^4$

υ = 3.5 (safety factor)

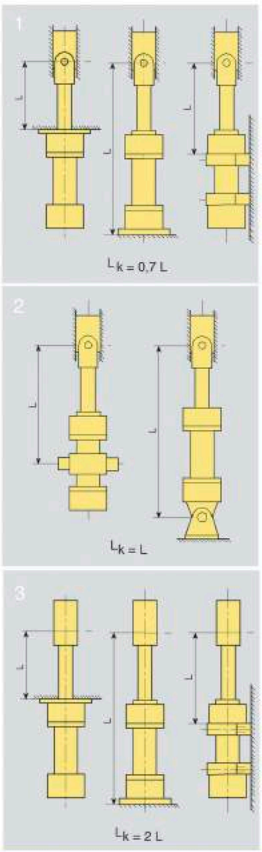
LK = Free buckling length in mm (dependent on the mounting style, see sketches A, B, C)

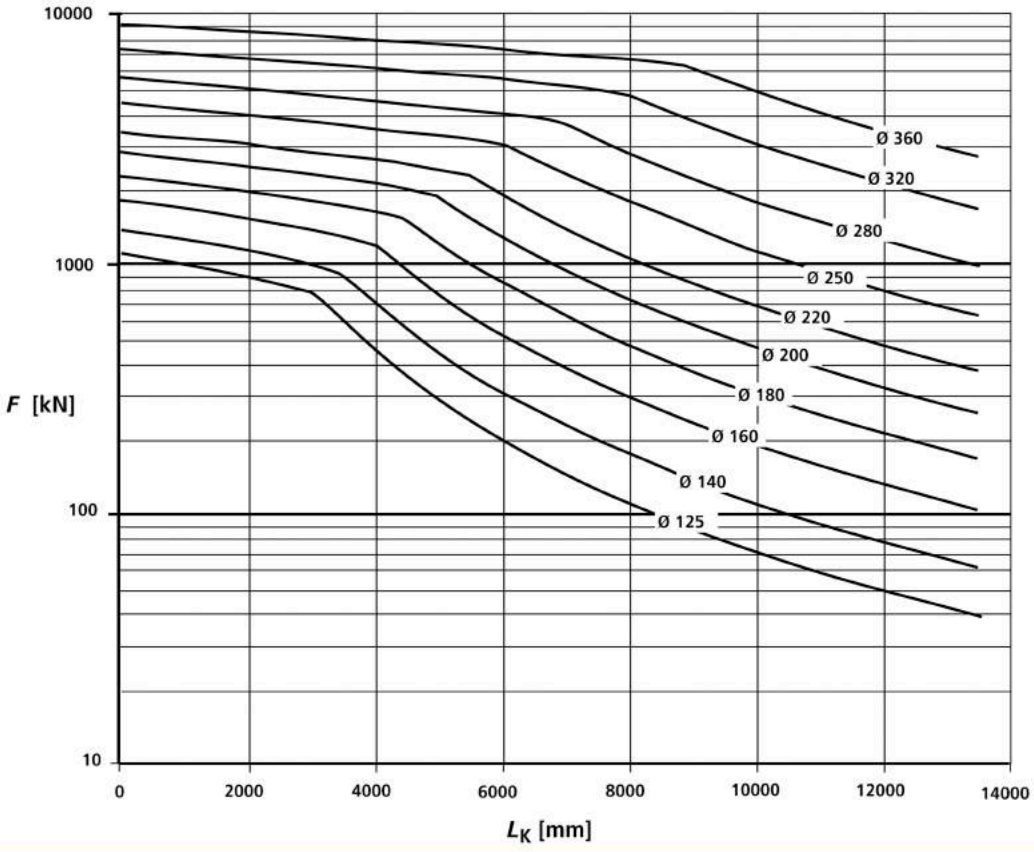
d = Piston rod Ø in mm

λ = Slenderness ratio $= \frac{4 \cdot L_K}{d}$ $\lambda g = \pi \sqrt{\frac{E}{0.8 \cdot R_e}}$

R_e = Yield strength of the piston rod material

Influence of the mounting type on the bucking length:





Model Code

1	2	3	4	5	6	7	-	8	9	10	11	12	13	14	15	16	17	-	18	19	20	21	22	-	23	24	25	26	27	28
B	C						-											-	A					-						

Series
BC = ISO 6020/1

Type
R1 = Single rod cylinder
R2 = Double rod cylinder

Mounting Styles
M00 = Without mounting (10)
MF1 = Rectangular flange at head (3)
MF2 = Rectangular flange at cap (3)
MF3 = Round flange at head
MF4 = Round flange at cap
MP3 = Plain clevis at cap
MP5 = Self-aligning clevis at cap
MS2 = Foot mounting
MT4 = Trunnion (11)

Piston Diameter
25 to 200 mm (see page 1)

Piston rod Diameter
14 to 140 mm (see page 1)

Stroke length in mm

Design principle
A = Head and base flanged

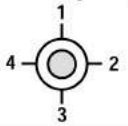
Component series
20 to 29 unchanged installation and connection dimensions

Connection ports/version
B = Pipe thread ISO 1179-1
R = Metric ISO thread (DIN/ISO 6149-1)
S = Enlarged pipe thread ISO 1179-1 (7), (9)
F = Rectangular flange connection ISO 6162 (6), (9)
H = Square flange connection ISO 6164 (5), (9)

For directional and high-response valves
P = Subplate size 6 (4), (9), (12)
T = Subplate size 10 (7), (9), (12)
U = Subplate size 16 (8), (9), (12)

For SL and SV valves
A = Subplate size 6 (4), (9), (12)
E = Subplate size 10 (7), (9), (12)
L = Subplate size 20 (8), (9), (12)

Connection port/position at head and base
1 =
2 =
3 =
4 =



Viewed on the piston rod

Option 2
W = Without option
Y = Indicate piston rod extension in mm in clear text

Option 1
W = Without option
A = Threaded coupling, both sides
E = Inductive proximity switches without mating connector; mating connector – separate order (5)

Seal variant
Suitable for mineral oil toDIN 51524 HL, HLP
M = Standard seal system
T = Servo performance type/reduced friction (5)
A = Chevron seal kit (6)
Suitable for phosphate esterHFD-R
V = Standard seal system
S = Servo performance type/reduced friction (5)

End position cushioning
U = Without
D = Both sides, self-adjusting
S = Head side, self-adjusting
K = Cap side, self-adjusting
E = Both sides, adjustable

Piston rod end
G = Thread (ISO 6020/1) for self-aligning clevis
H = Thread (VW standard) for self-aligning clevis (13)
E = Female thread (2)
F = Piston rod end H with self-aligning clevis mounted (13)
K = Piston rod end G with self-aligning clevis mounted

Piston rod variant
C = Hard chromium-plated
H = Hardened and hard chromium-plated (1)
L = Stainless steel, hard chromium-plated

(1) = Piston rod Ø 14 to 110 mm
(2) = Piston rod Ø 22 to 140 mm
(3) = Piston Ø 25 to 125 mm
(4) = Piston Ø 40 to 80 mm
(5) = Piston Ø 40 to 200 mm
(6) = Piston Ø 50 to 200 mm
(7) = Piston Ø 63 to 200 mm
(8) = Piston Ø 125 to 200 mm
(9) = Not for MF2; MF4
(10) = Only available on request
(11) = Always specify dimension "XY" in mm in clear text on the order
(12) = Subplates only possible with pipe thread (ISO 1179-1)
(13) = Per piston Ø, only possible with large piston rod Ø

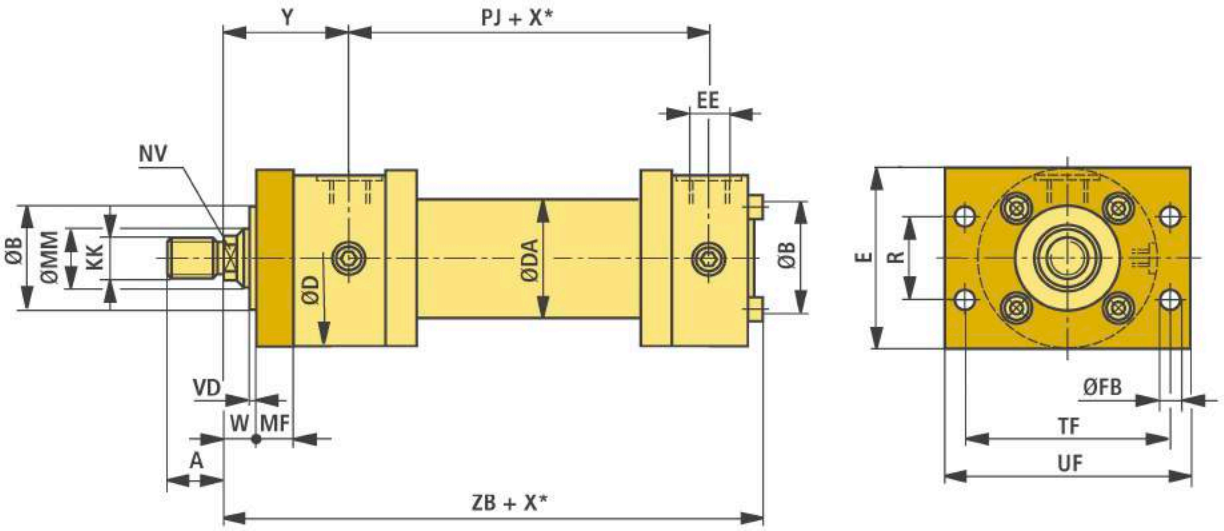
Weight

Bore Ø	25		32		40		50		63	
Rod Ø	**14**	**18**	**18**	**22**	**22**	**28**	**28**	**36**	**36**	**45**
 **MF1**	3,2	3,3	4,5	4,7	7,4	7,6	9,7	9,8	16,5	16,9
 **MF2**	3,2	3,3	4,5	4,7	7,4	7,6	9,7	9,8	16,5	16,9
 **MF3**	3,3	3,4	4,8	5,0	7,4	7,6	10,2	10,3	18,1	18,5
 **MF4**	3,3	3,4	4,8	5,0	7,4	7,6	10,2	10,3	18,1	18,5
 **MP3 MP5**	3,0	3,1	4,1	4,3	6,6	6,8	8,6	8,7	14,7	15,1
 **MS2**	3,6	3,7	6,2	6,4	8,6	8,8	12,1	12,2	20,2	20,6
 **MT4**	3,2	3,3	4,5	4,7	7,5	7,7	10,2	10,3	17,1	17,5
Additional Weight per 100 mm stroke	0,33	0,41	0,55	0,65	0,85	1,04	1,18	1,48	1,80	2,30
 Rod eye with spherical bearing	0,1	0,2	0,2	0,4	0,4	0,66	0,66	1,2	1,2	2,1
Bore Ø	**80**		**100**		**125**		**160**		**200**	
Rod Ø	**45**	**56**	**56**	**70**	**70**	**90**	**90**	**110**	**110**	**140**
 **MF1**	24,1	24,6	42,5	44,5	66,5	67,7	-	-	-	-
 **MF2**	24,1	24,6	42,5	44,5	66,5	67,7	-	-	-	-
 **MF3**	25,0	25,5	45,7	46,7	67,8	69,0	119	122	209	211
 **MF4**	25,0	25,5	45,7	46,7	67,8	69,0	119	122	209	211
 **MP3 MP5**	21,5	22,0	39,6	40,6	63,0	64,2	114	117	205	207
 **MS2**	30,9	31,4	54,7	55,7	85,4	86,6	144	147	255	257
 **MT4**	25,5	26,0	46,5	47,5	75,2	76,4	125	128	231	233
Additional Weight per 100 mm stroke	2,90	3,50	4,60	5,70	7,20	9,20	11,5	13,9	15,3	19,9
 Rod eye with spherical bearing	2,1	4,4	4,4	7,6	7,6	14,5	14,5	28,0	28,0	43,0

MF1
ISO 6020/2

Front rectanqular flange mounting

Nominal pressure **160 bar**

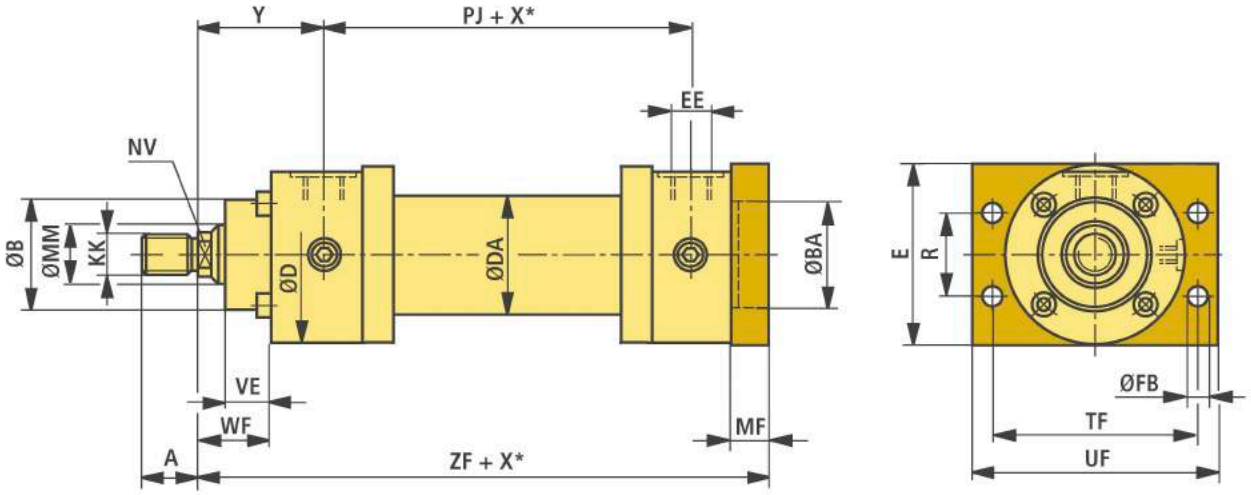


Bore Ø	25		32		40		50		63		80		100		125	
MM	**14**	**18**	**18**	**22**	**22**	**28**	**28**	**36**	**36**	**45**	**45**	**56**	**56**	**70**	**70**	**90**
A 1	16	18	18	22	22	28	28	36	36	45	45	56	56	63	63	85
A 2	-	16	-	18	-	22	-	28	-	36	-	45	-	56	-	63
B_{f8}	32		40		50		60		70		85		106		132	
D	56		67		78		95		116		130		158		192	
DA	35		42		50		60		78		95		120		150	
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	
FB_{H13}	6,6		9		9		11		13,5		17,5		22		22	
KK 1	M12 x1,25	M14 x1,5	M14 x1,5	M16 x1,5	M16 x1,5	M20 x1,5	M20 x1,5	M27 x2	M27 x2	M33 x2	M33 x2	M42 x2	M42 x2	M48 x2	M48 x2	M64 x3
KK 2	-	M14 x1,5	-	M14 x1,5	-	M16 x1,5	-	M20 x1,5	-	M27 x2	-	M33 x2	-	M42 x2	-	M48 x2
MF	12		16		16		20		25		32		32		32	
NV	12	14	14	18	18	22	22	30	30	36	36	46	46	60	60	75
PJ	77		89		97		111		117		134		162		174	
R_{js13}	28,7		35,2		40,6		48,2		55,5		63,1		76,5		90,2	
TF_{js13}	69,2		85		98		116,4		134		152,5		184,8		217,1	
UF	85		105		115		140		160		185		225		255	
VD	3		3		3		4		4		4		5		5	
W	16		16		16		18		20		22		25		28	
Y	58		64		71		72		82		91		108		121	
ZB	155		176		196		213		234		260		310		335	

MF2 Rear rectangular flange mounting

ISO 6020/1

Nominal pressure **160 bar**



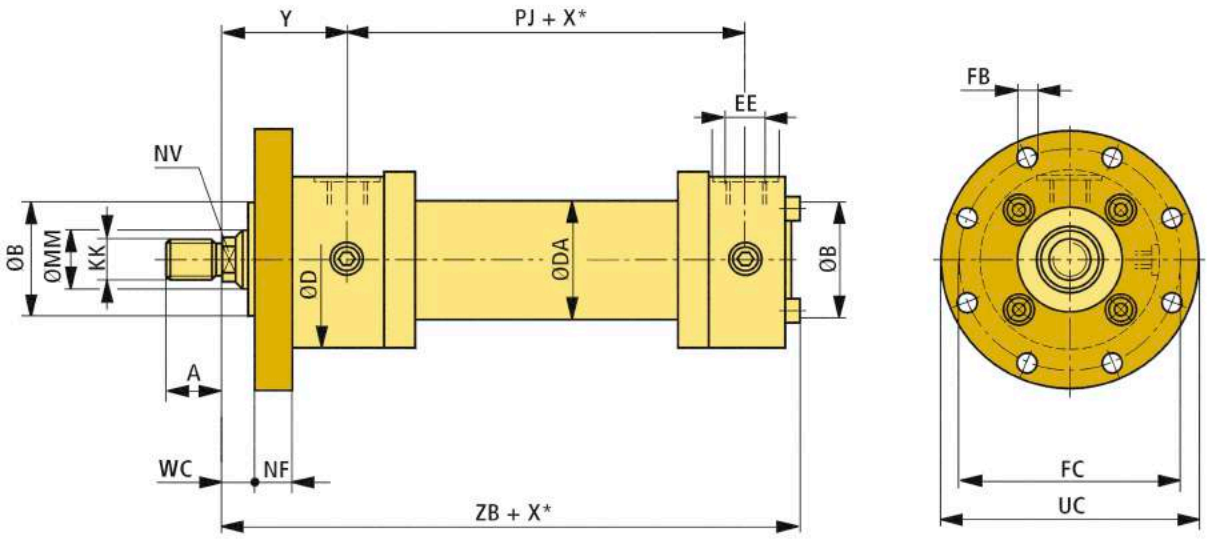
Bore Ø	25		32		40		50		63		80		100		125	
MM	**14**	**18**	**18**	**22**	**22**	**28**	**28**	**36**	**36**	**45**	**45**	**56**	**56**	**70**	**70**	**90**
A 1	16	18	18	22	22	28	28	36	36	45	45	56	56	63	63	85
A 2	-	16	-	18	-	22	-	28	-	36	-	45	-	56	-	63
B_{f8}	32		40		50		60		70		85		106		132	
BA_{H8}	32		40		50		60		70		85		106		132	
D	56		67		78		95		116		130		158		192	
DA	35		42		50		60		78		95		120		150	
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	
FB_{H13}	6,6		9		9		11		13,5		17,5		22		22	
KK 1	M12 x1,25	M14 x1,5	M14 x1,5	M16 x1,5	M16 x1,5	M20 x1,5	M20 x1,5	M27 x2	M27 x2	M33 x2	M33 x2	M42 x2	M42 x2	M48 x2	M48 x2	M64 x3
KK 2	-	M14 x1,5	-	M14 x1,5	-	M16 x1,5	-	M20 x1,5	-	M27 x2	-	M33 x2	-	M42 x2	-	M48 x2
MF	12		16		16		20		25		32		32		32	
NV	12	15	15	17	17	22	22	28	28	36	36	46	46	60	60	75
PJ	77		89		97		111		117		134		162		174	
R_{jst3}	28,7		35,2		40,6		48,2		55,5		63,1		76,5		90,2	
TF_{jst3}	69,2		85		98		116,4		134		152,5		184,8		217,1	
UF	85		105		115		140		160		185		225		255	
VE	15		19		19		24		29		36		37		37	
WF	28		32		32		38		45		54		57		60	
Y	58		64		71		72		82		91		108		121	
ZF	162		186		206		225		249		282		332		357	

BRANT HYDRAULICS

MF3
ISO 6020/2

Front round flange mounting

Nominal pressure **160 bar**

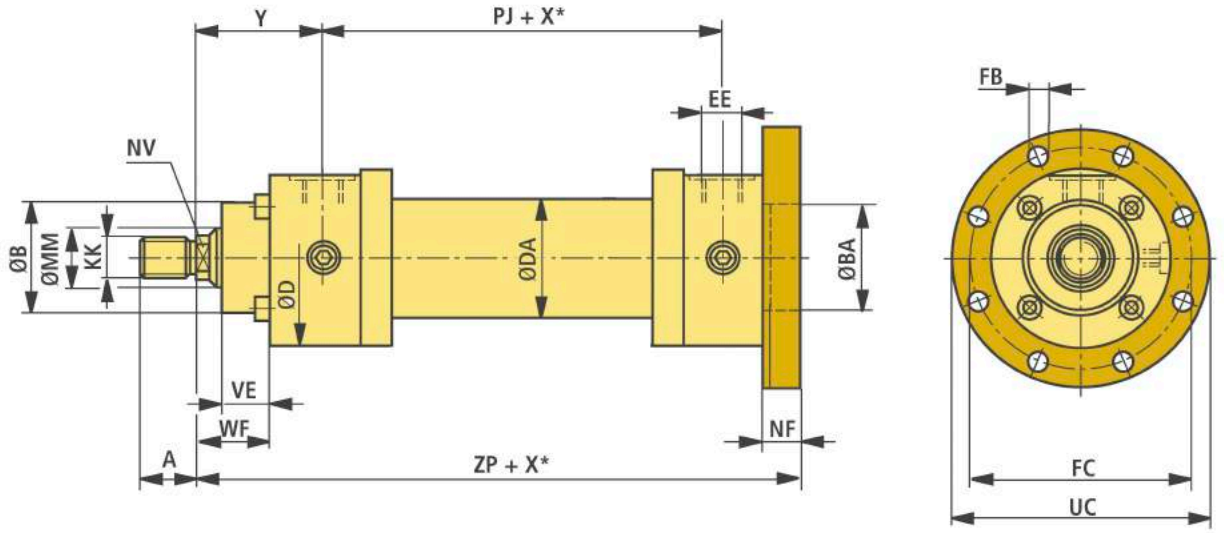


Bore Ø		25		32		40		50		63		80		100		125		160		200		250		320	
MM		**14**	**18**	**18**	**22**	**22**	**28**	**28**	**36**	**36**	**45**	**45**	**56**	**56**	**70**	**70**	**90**	**90**	**110**	**110**	**140**	**140**	**180**	**180**	**220**
A	1	16	18	18	22	22	28	28	36	36	45	45	56	56	63	63	85	85	95	95	112	112	125	125	160
	2	-	18	-	22	-	28	-	36	-	45	-	56	-	63	-	85	-	95	-	112	-	125	-	160
B_{f8}		32		40		50		60		70		85		106		132		160		200		250		320	
D		56		67		78		95		116		130		158		192		232		285		365		450	
DA		35		42		50		60		78		95		120		150		190		230		298		368	
EE		1/4"G		3/8"G		1/2"G		1/2"G		3/4"G		3/4"G		1"G		1"G		1 1/4"G		1 1/4"G		1 1/2"G		1 1/2"G	
FB_{H13}		6,6		9		9		11		13,5		17,5		22		22		22		26		33		39	
FC_{js13}		75		92		106		126		145		165		200		235		280		340		420		520	
KK	1	M12 x1,25	M14 x1,5	M14 x1,5	M16 x1,5	M16 x1,5	M20 x1,5	M20 x1,5	M27 x2	M27 x2	M33 x2	M33 x2	M42 x2	M42 x2	M48 x2	M48 x2	M64 x3	M64 x3	M80 x3	M80 x3	M100 x3	M100 x3	M125 x4	M125 x4	M160 x4
	2	-	M12 x1,25	-	M14 x1,5	-	M16 x1,5	-	M20 x1,5	-	M27 x2	-	M33 x2	-	M42 x2	-	M48 x2	-	M64 x3	-	M80 x3	-	M100 x3	-	M125 x4
NF		12		16		16		20		25		32		32		32		36		40		56		63	
NV		12	14	14	18	18	22	22	30	30	36	36	46	46	60	60	75	75	95	95	120	120	160	160	200
PJ		77		89		97		111		117		134		162		174		191		224		290		358	
UC		90		110		125		150		170		195		240		275		320		385		500		620	
VD		3		3		3		4		4		4		5		5		5		5		8		8	
WC		16		16		16		18		20		22		25		28		30		35		40		45	
Y		58		64		71		72		82		91		108		121		143		190		205		250	
ZB		155		176		196		213		234		260		310		335		380		466		580		696	

MF4
ISO 6020/1

Rear round flange mounting

Nominal pressure **160 bar**

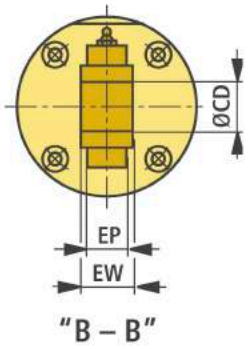


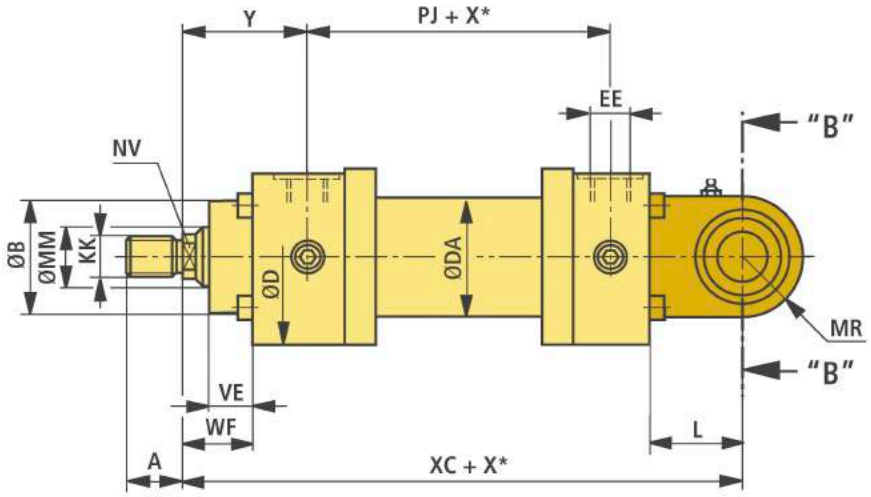
Bore Ø	25		32		40		50		63		80		100		125		160		200		250		320	
MM	**14**	**18**	**18**	**22**	**22**	**28**	**28**	**36**	**36**	**45**	**45**	**56**	**56**	**70**	**70**	**90**	**90**	**110**	**110**	**140**	**140**	**180**	**180**	**220**
A 1	16	18	18	22	22	28	28	36	36	45	45	56	56	63	63	85	85	95	95	112	112	125	125	160
A 2	-	18	-	22	-	28	-	36	-	45	-	56	-	63	-	85	-	95	-	112	-	125	-	160
B_{f8}	32		40		50		60		70		85		106		132		160		200		250		320	
BA_{H8}	32		40		50		60		70		85		106		132		160		200		250		320	
D	56		67		78		95		116		130		158		192		237		285		365		450	
DA	35		42		50		60		73		120		150		190		185		230		298		368	
EE	1/4"G		3/8"G		1/2"G		1/2"G		3/4"G		3/4"G		1"G		1"G		1 1/4"G		1 1/4"G		1 1/2"G		1 1/2"G	
FB_{H13}	6,6		9		9		11		13,5		17,5		22		22		22		26		33		39	
FC_{js13}	75		92		106		126		145		165		200		235		280		340		420		520	
KK 1	M12 x1,25	M14 x1,5	M14 x1,5	M16 x1,5	M16 x1,5	M20 x1,5	M20 x1,5	M27 x2	M27 x2	M33 x2	M33 x2	M42 x2	M42 x2	M48 x2	M48 x2	M64 x3	M64 x3	M80 x3	M80 x3	M100 x3	M100 x3	M125 x4	M125 x4	M160 x4
KK 2	-	M12 x1,25	-	M14 x1,5	-	M16 x1,5	-	M20 x1,5	-	M27 x2	-	M33 x2	-	M42 x2	-	M48 x2	-	M64 x3	-	M80 x3	-	M100 x3	-	M125 x4
NF	12		16		16		20		25		32		32		32		36		40		56		63	
NV	12	14	14	18	18	22	22	30	30	36	36	46	46	60	60	75	75	95	95	120	120	160	160	200
PJ	77		89		97		111		117		134		162		174		191		224		290		358	
UC	90		110		125		150		170		195		240		275		320		385		500		620	
VE	15		19		19		24		29		36		37		37		41		45		64		71	
WF	28		32		32		38		45		54		57		60		66		75		96		108	
Y	58		64		71		72		82		91		108		121		143		190		205		250	
ZP	162		186		206		225		249		282		332		357		406		490		606		723	

BRANT HYDRAULICS

MP3 ISO 6020/2 | Eye mounting

Nominal pressure **160 bar**



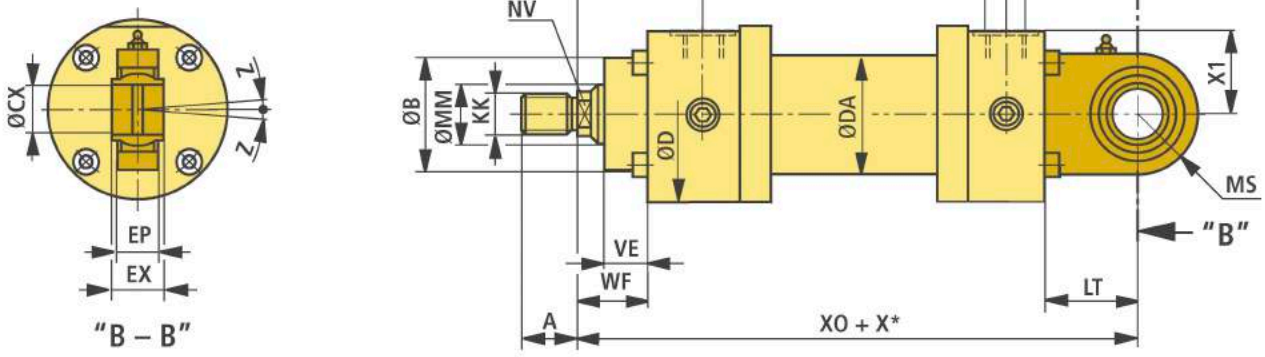


Bore Ø		25		32		40		50		63		80		100		125		160		200		250		320	
MM		**14**	**18**	**18**	**22**	**22**	**28**	**28**	**36**	**36**	**45**	**45**	**56**	**56**	**70**	**70**	**90**	**90**	**110**	**110**	**140**	**140**	**180**	**180**	**220**
A	1	16	18	18	22	22	28	28	36	36	45	45	56	56	63	63	85	85	95	95	112	112	125	125	160
	2	-	18	-	22	-	28	-	36	-	45	-	56	-	63	-	85	-	95	-	112	-	125	-	160
B_{f8}		32		40		50		60		70		85		106		132		160		200		250		320	
CD_{H9}		12		16		20		25		32		40		50		63		80		100		125		160	
D		56		67		78		95		116		130		158		192		237		285		365		450	
DA		35		42		50		60		78		95		115		145		185		230		298		368	
EE		1/4"G		3/8"G		1/2"G		1/2"G		3/4"G		3/4"G		1"G		1"G		1 1/4"G		1 1/4"G		1 1/2"G		1 1/2"G	
EP		11		13		17		22		27		32		40		52		66		84		102		130	
EW_{h12}		12		16		20		25		32		40		50		63		80		100		125		160	
KK	1	M12 x1,25	M14 x1,5	M14 x1,5	M16 x1,5	M16 x1,5	M20 x1,5	M20 x1,5	M27 x2	M27 x2	M33 x2	M33 x2	M42 x2	M42 x2	M48 x2	M48 x2	M64 x3	M64 x3	M80 x3	M80 x3	M100 x3	M100 x3	M125 x4	M125 x4	M160 x4
	2	-	M12 x1,25	-	M14 x1,5	-	M16 x1,5	-	M20 x1,5	-	M27 x2	-	M33 x2	-	M42 x2	-	M48 x2	-	M64 x3	-	M80 x3	-	M100 x3	-	M125 x4
L		25		33		38		48		61		78		90		98		127		150		193		234	
MR		16		20		25		32		40		50		63		71		90		112		160		200	
NV		12	15	15	17	17	22	22	28	28	36	36	46	46	60	60	75	75	90	90	120	120	160	160	200
PJ		77		89		97		111		117		134		162		174		191		224		290		358	
VE		15		19		19		24		29		36		37		37		41		45		64		71	
WF		28		32		32		38		45		54		57		60		66		75		96		108	
XC		178		206		231		257		289		332		395		428		505		615		773		930	
Y		58		64		71		72		82		91		108		121		143		190		205		250	

MP5 Spherical eye mounting

ISO 6020/1

Nominal pressure **160 bar**



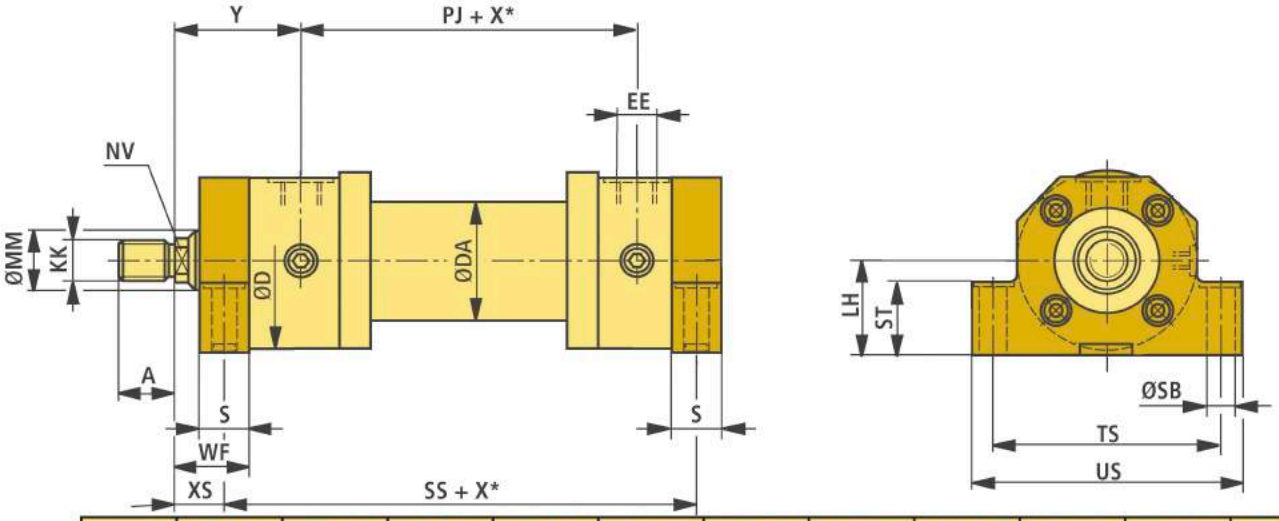
Bore Ø		25		32		40		50		63		80		100		125		160		200		250		320	
MM		**14**	**18**	**18**	**22**	**22**	**28**	**28**	**36**	**36**	**45**	**45**	**56**	**56**	**70**	**70**	**90**	**90**	**110**	**110**	**140**	**140**	**180**	**180**	**220**
A	1	16	18	18	22	22	28	28	36	36	45	45	56	56	63	63	85	85	95	95	112	112	125	125	160
	2	-	18	-	22	-	28	-	36	-	45	-	56	-	63	-	85	-	95	-	112	-	125	-	160
B_{f8}		32		40		50		60		70		85		106		132		160		200		250		320	
CX_{H7}		12		16		20		25		32		40		50		63		80		100		125		160	
D		56		67		78		95		116		130		158		192		237		285		365		450	
DA		35		42		50		60		78		95		115		145		185		230		298		368	
EE		1/4"G		3/8"G		1/2"G		1/2"G		3/4"G		3/4"G		1"G		1"G		1 1/4"G		1 1/4"G		1 1/2"G		1 1/2"G	
EP		11		13		17		22		27		32		40		52		66		84		102		130	
EX_{h12}		12		16		20		25		32		40		50		63		80		100		125		160	
KK	1	M12 x1,25	M14 x1,5	M14 x1,5	M16 x1,5	M16 x1,5	M20 x1,5	M20 x1,5	M27 x2	M27 x2	M33 x2	M33 x2	M42 x2	M42 x2	M48 x2	M48 x2	M64 x3	M64 x3	M80 x3	M80 x3	M100 x3	M100 x3	M125 x4	M125 x4	M160 x4
	2	-	M12 x1,25	-	M14 x1,5	-	M16 x1,5	-	M20 x1,5	-	M27 x2	-	M33 x2	-	M42 x2	-	M48 x2	-	M64 x3	-	M80 x3	-	M100 x3	-	M125 x4
LT		25		33		38		48		61		78		90		98		127		150		193		234	
MS		16		20		25		32		40		50		63		71		90		112		160		200	
NV		12	15	15	17	17	22	22	28	28	36	36	46	46	60	60	75	75	90	90	120	120	160	160	200
PJ		77		89		97		111		117		134		162		174		191		224		290		358	
VE		15		19		19		24		29		36		37		37		41		45		64		71	
WF		28		32		32		38		45		54		57		60		66		75		96		108	
XO		178		206		231		257		289		332		395		428		505		615		773		930	
Y		58		64		71		72		82		91		108		121		143		190		205		250	

BRANT HYDRAULICS

MS2 Foot mounting

ISO 6020/2

Nominal pressure **160 bar**

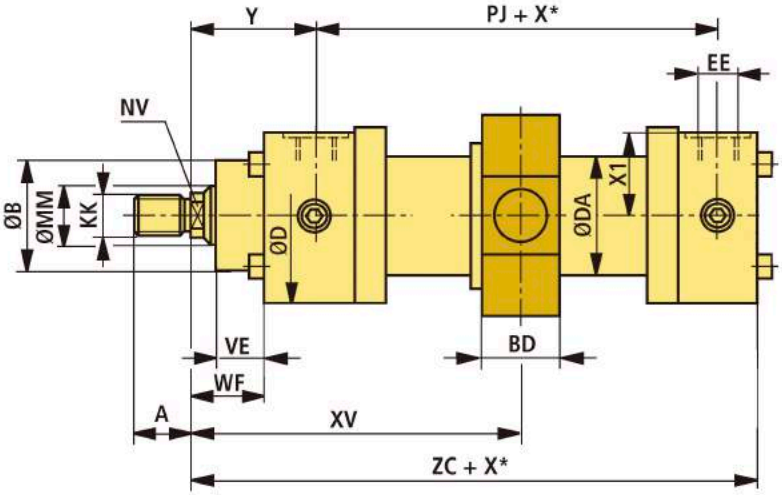


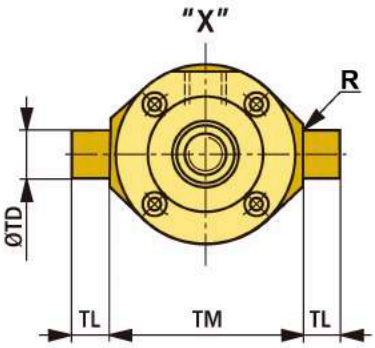
Bore Ø		25		32		40		50		63		80		100		125		160		200		250		320	
MM		**14**	**18**	**18**	**22**	**22**	**28**	**28**	**36**	**36**	**45**	**45**	**56**	**56**	**70**	**70**	**90**	**90**	**110**	**110**	**140**	**140**	**180**	**180**	**220**
A	1	16	18	18	22	22	28	28	36	36	45	45	56	56	63	63	85	85	95	95	112	112	125	125	160
	2	-	18	-	22	-	28	-	36	-	45	-	56	-	63	-	85	-	95	-	112	-	125	-	160
B_{f8}		32		40		50		60		70		85		106		132		160		200		250		320	
D		56		67		78		95		116		130		158		192		232		285		365		450	
DA		35		42		50		60		73		95		115		145		185		230		298		368	
EE		1/4"G		3/8"G		1/2"G		1/2"G		3/4"G		3/4"G		1"G		1"G		1 1/4"G		1 1/4"G		1 1/2"G		1 1/2"G	
KK	1	M12 x1,25	M14 x1,5	M14 x1,5	M16 x1,5	M16 x1,5	M20 x1,5	M20 x1,5	M27 x2	M27 x2	M33 x2	M33 x2	M42 x2	M42 x2	M48 x2	M48 x2	M64 x3	M64 x3	M80 x3	M80 x3	M100 x3	M100 x3	M125 x4	M125 x4	M160 x4
	2	-	M12 x1,25	-	M14 x1,5	-	M16 x1,5	-	M20 x1,5	-	M27 x2	-	M33 x2	-	M42 x2	-	M48 x2	-	M64 x3	-	M80 x3	-	M100 x3	-	M125 x4
LH_{h10}		32		38		48		52		62		70		82		100		142		170		195		245	
NV		12	15	15	17	17	22	22	28	28	36	36	46	46	60	60	75	75	90	90	120	120	160	160	200
PJ		77		89		97		111		117		134		162		174		191		224		290		358	
S		20		25		25		32		32		40		50		56		56		60		70		80	
SB_{H13}		9		11		11		14		18		22		26		33		33		36		45		52	
SS		19		22		24		26		33		42		49		55		66		90		125		156	
ST		20		20		20		25		25		30		35		35		45		50		60		70	
TS_{js13}		75		90		110		120		145		170		200		245		320		400		480		580	
US		92		110		130		145		180		210		245		300		400		500		570		680	
VE		15		19		19		24		29		36		37		37		41		45		64		71	
WF		28		32		32		38		45		54		57		60		66		75		96		108	
XS		87		97,5		106		116		123		136		164		180		206		257		283		350	
Y		58		64		71		72		82		91		108		121		143		190		205		25	
ZB		155		176		198		213		234		260		310		335		380		474		580		696	
Min. stroke		25		30		35		60		60		100		100		140		250		275		300		400	

MT4 Intermediate trunnion mounting

ISO 6020/1

Nominal pressure **160 bar**



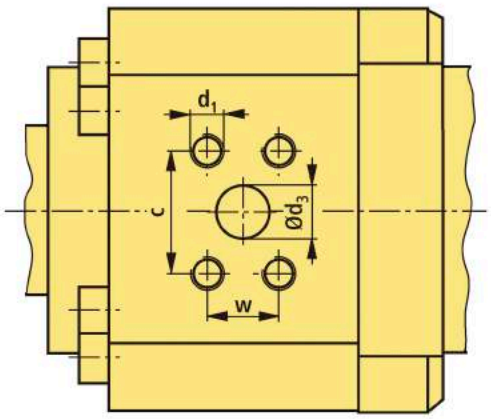


Bore Ø	25		32		40		50		63		80		100		125		160		200		250		320	
MM	**14**	**18**	**18**	**22**	**22**	**28**	**28**	**36**	**36**	**45**	**45**	**56**	**56**	**70**	**70**	**90**	**90**	**110**	**110**	**140**	**140**	**180**	**180**	**220**
A 1	16	18	18	22	22	28	28	36	36	45	45	56	56	63	63	85	85	95	95	112	112	125	125	160
A 2	-	18	-	22	-	28	-	36	-	45	-	56	-	63	-	85	-	95	-	112	-	125	-	160
B_{f8}	32		40		50		60		70		85		106		132		160		200		250		320	
BD	20		25		30		35		45		50		60		75		90		110		135		175	
D	56		67		78		95		116		130		158		192		232		285		365		450	
DA	35		42		50		60		78		95		120		150		190		230		298		368	
EE	1/4"G		3/8"G		1/2"G		1/2"G		3/4"G		3/4"G		1"G		1"G		1 1/4"G		1 1/4"G		1 1/2"G		1 1/2"G	
KK 1	M12 x1,25	M14 x1,5	M14 x1,5	M16 x1,5	M16 x1,5	M20 x1,5	M20 x1,5	M27 x2	M27 x2	M33 x2	M33 x2	M42 x2	M42 x2	M48 x2	M48 x2	M64 x3	M64 x3	M80 x3	M80 x3	M100 x3	M100 x3	M125 x4	M125 x4	M160 x4
KK 2	-	M12 x1,25	-	M14 x1,5	-	M16 x1,5	-	M20 x1,5	-	M27 x2	-	M33 x2	-	M42 x2	-	M48 x2	-	M64 x3	-	M80 x3	-	M100 x3	-	M125 x4
NV	12	14	14	18	18	22	22	30	30	36	36	46	46	60	60	75	75	95	95	120	120	160	160	200
PJ	77		89		97		111		117		134		162		174		191		224		290		358	
R1	1		1		1,5		1,5		2		2,5		2,5		3		3		3,5		3,5		3,5	
TD_{f8}	12		16		20		25		32		40		50		63		80		100		125		160	
TL_{js16}	10		12		16		20		25		32		40		50		63		80		100		125	
TM_{h13}	63		75		90		105		120		135		160		195		240		295		370		470	
UM	83		99		122		145		170		199		240		295		366		455		570		720	
VE	15		19		19		24		29		36		37		37		41		45		64		71	
WF	28		32		32		38		45		54		57		60		66		75		96		108	
$XV_{min.}$	107		120		135		145		165		180		215		240		280		350		395		495	
$XV^{+ stroke}_{max.}$	75		85		90		100		107		125		150		160		177		235		297		361	
Y	58		64		71		72		82		91		108		121		143		190		205		250	
ZB	155		176		198		213		234		260		310		335		380		466		580		696	
Min. stroke	40		40		45		50		55		60		70		80		103		115		120		134	

Port Type

	STANDARD	ON REQUEST (ADDITIONAL PRICE)								
	G	M	S	N	U	V	W	X	Y	Z
Bore Ø	BSP GAS ISO 228/1	METRIC	ISO/DIS 6162.2 (2,5-31,5 MPA)	NPT	UNF-2B	BSP GAS ISO 228/1	METRIC	ISO/DIS 6162.2 (2,5-31,5 MPA)	NPT	UNF-2B
25	1/4"	12x1,5	-	1/4"	7/16-20	3/8"	16x1,5	-	3/8"	9/16-18
32	3/8"	16x1,5	-	3/8"	9/16-18	1/2"	22x1,5	-	1/2"	3/4-16
40	1/2"	22x1,5	-	1/2"	3/4-16	3/4"	27x2	-	3/4"	1 1/16-12
50	1/2"	22x1,5	-	1/2"	3/4-16	3/4"	27x2	-	3/4"	1 1/16-12
63	3/4"	27x2	13	3/4"	1 1/16-12	1"	33x2	-	1"	1 5/16-12
80	3/4"	27x2	13	3/4"	1 1/16-12	1"	33x2	-	1"	1 5/16-12
100	1"	33x2	19	1"	1 5/16-12	1 1/4"	42x2	25	1 1/4"	1 5/8-12
125	1"	33x2	19	1"	1 5/16-12	1 1/4"	42x2	25	1 1/4"	1 5/8-12
160	1 1/4"	42x2	25	1 1/4"	1 5/8-12	1 1/2"	48x2	32	1 1/2"	1 7/8-12
200	1 1/4"	42x2	25	1 1/4"	1 5/8-12	1 1/2"	48x2	32	1 1/2"	1 7/8-12
250	1 1/2"	48x2	32	1 1/2"	1 7/8-12	2"	60x2	38	2"	2 1/2-12

ISO/DIS 6162.2 (2,5-31,5 MPa) - SAE 3000 (*ISO/DIS 6162.2 (40 MPa) - SAE 6000)



DN	d_3 $^{0}_{-1,5}$	c ±0,25	w ±0,25	D_1
13	13	17,5	38,1	M8x1,25
19	19	22,3	47,6	M10x1,5
25	25	26,2	52,4	M10x1,5
32	32	30,2	58,7	M10x1,5
*38	38	36,5	79,3	M16x2

Tolerances to ISO 8135

Installation dimensions	WC	XC [1]	XO [1]	XS	XV	ZP	
Mounting type	MF3	MP3	MP5	MS2	MT4	MF4	

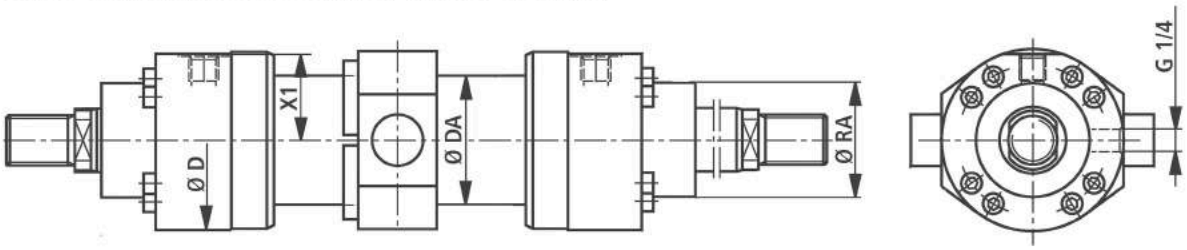
Stroke	Tolerances						Stroke tolerances	
0 - 499	±2	±1,5	±1,5	±2	±2	±1,5	0	+3
500 - 1249	±2,8	±2	±2	±2,8	±2,8	±2	0	+4
1250 - 3149	±4	±3	±3	±4	±4	±3	0	+6
3150 - 8000	±8	±5	±5	±8	±8	±5	0	+10

Optional Features

Double Rod Cylinder

ISO 602/1 series cylinders are available with the option of a double-ended piston rod.

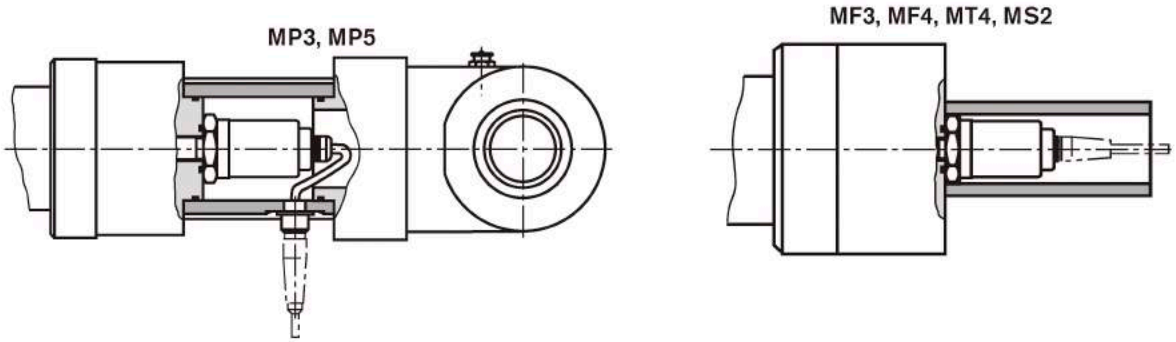
Please contact the factory for further details.



Position Measure System

Linear position transducers of various types may be fitted to ISO 6020/1 series cylinders.

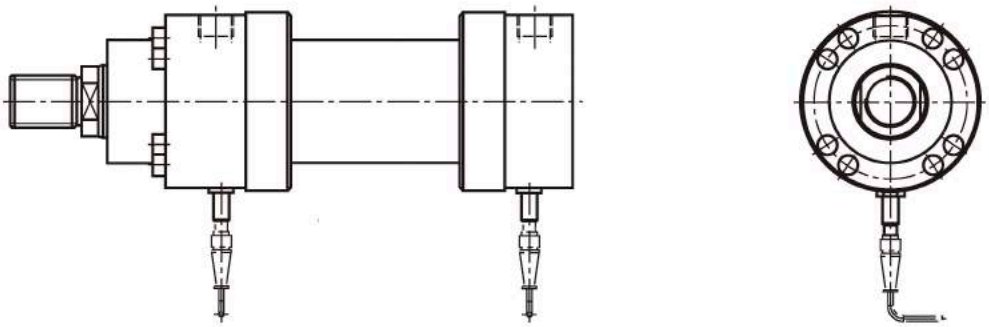
Please contact the factory for further details.



Position Proximity Switch

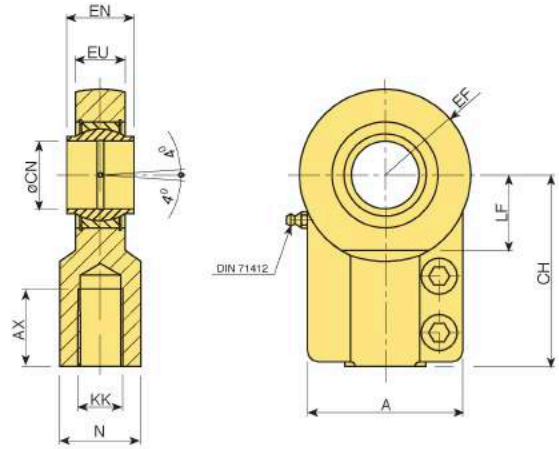
Non-contacting position switches are available for ISO 6020/1 serious cylinders.

Please contact the factory for further details.



BRANT HYDRAULICS

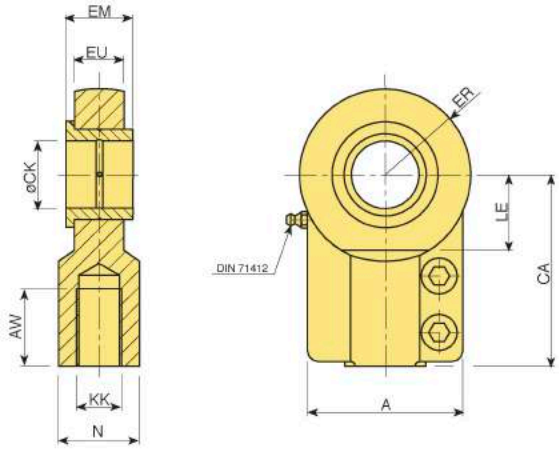
ISO 6982 CETOP RP 88 H DIN 24338



Rod end spherical eyes

Part No.	KK	A	AX	CH	CN H7	EF	EN h12	EU	LF	N
RB BA012	M12x1,25	32	17	38	12	16	12	10,6	14	16,5
RB BA016	M14x1,5	40	19	44	16	20	16	13	18	21
RB BA020	M16x1,5	47	23	52	20	25	20	17	22	25
RB BA025	M20x1,5	54	29	65	25	31	25	21	27	30
RB BA032	M27x2	66	37	80	32	38	32	27	32	38
RB BA040	M33x2	80	46	97	40	49	40	32	41	47
RB BA050	M42x2	96	57	120	50	59	50	40	50	58
RB BA063	M48x2	114	64	140	63	71	63	52	62	70
RB BA080	M64x3	148	86	180	80	90	80	66	78	90
RB BA100	M80x3	178	96	210	100	112	100	84	98	110
RB BA125	M100x3	200	113	260	125	145	125	102	120	135
RB BA160	M125x4	250	126	310	160	178	160	130	150	165
RB BA200	M160x4	320	161	390	200	230	200	162	195	215

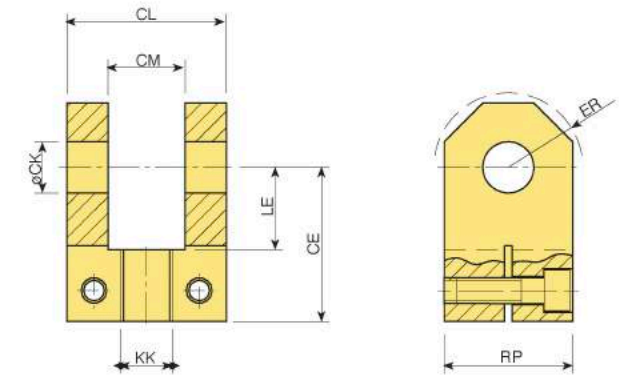
ISO 6981 CETOP RP 87 H DIN 24337



Rod end plain eyes

Part No.	KK	A	AW	CA	CK H9	EM h12	ER	EU	LE	N
RE BA012	M12x1,25	32	17	38	12	12	16	10,6	14	16,5
RE BA016	M14x1,5	40	19	44	16	16	20	13	18	21
RE BA020	M16x1,5	47	23	52	20	20	25	17	22	25
RE BA025	M20x1,5	54	29	65	25	25	31	21	27	30
RE BA032	M27x2	66	37	80	32	32	38	27	32	38
RE BA040	M33x2	80	46	97	40	40	49	32	41	47
RE BA050	M42x2	96	57	120	50	50	59	40	50	58
RE BA063	M48x2	114	64	140	63	63	71	52	62	70
RE BA080	M64x3	148	86	180	80	80	90	66	78	90
RE BA100	M80x3	178	96	210	100	100	112	84	98	110
RE BA125	M100x3	200	113	260	125	125	145	102	120	135
RE BA160	M125x4	250	126	310	160	160	178	130	150	165
RF BA200	M160x4	320	161	390	200	200	230	162	195	215

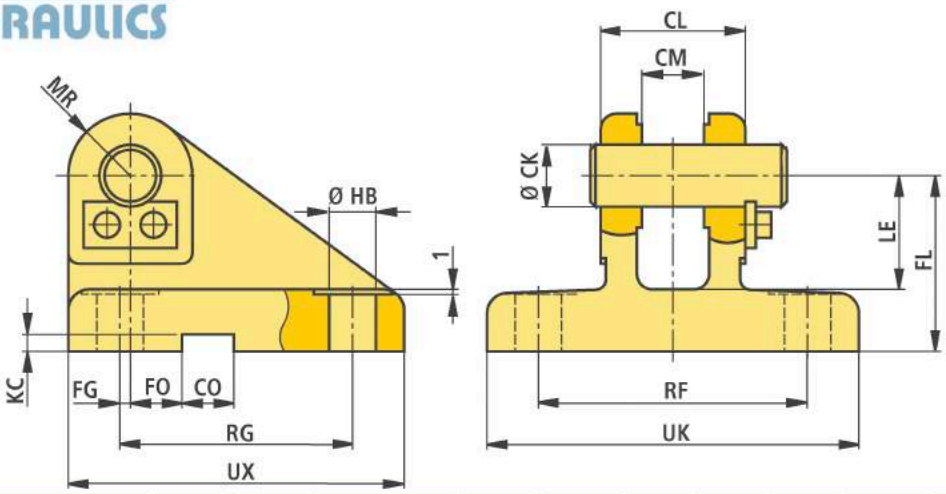
ISO 8132



Rod clevis

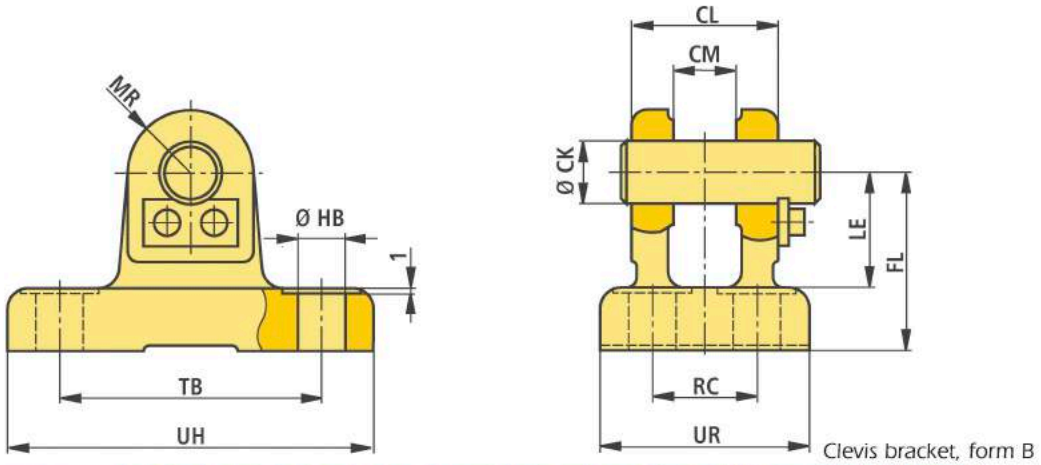
Part No.	KK	CE js12	CK H9	CL h16	CM A12	ER	LE	RP
RC BA012	M12x1,25	38	12	28	12	16	18	25
RC BA016	M14x1,5	44	16	36	16	20	22	30
RC BA020	M16x1,5	52	20	45	20	25	27	40
RC BA025	M20x1,5	65	25	56	25	32	34	50
RC BA032	M27x2	80	32	70	32	40	42	65
RC BA040	M33x2	97	40	90	40	50	52	80
RC BA050	M42x2	120	50	110	50	63	64	100
RC BA063	M48x2	140	63	140	63	71	75	140
RC BA080	M64x3	180	80	170	80	90	94	180

Mounting Parts



Clevis bracket, form A

Port No.	CK H9	CL h16	CM A12	CO N9	FG Js14	FL Js12	FO Js14	HB H13	KC +0.3 0	LE	MR	RF Js14	RG Js14	UK	UX
RM BR12	12	28	12	10	2	34	10	9	3,3	22	12	52	45	72	65
RM BR16	16	36	16	16	3,5	40	10	11	4,3	27	16	65	55	90	80
RM BR20	20	45	20	16	7,5	45	10	11	4,3	30	20	75	70	100	95
RM BR25	25	56	25	25	10	55	10	13,5	5,4	37	25	90	85	120	115
RM BR32	32	70	32	25	14,5	65	6	17,5	5,4	43	32	110	110	145	145
RM BR40	40	90	40	36	17,5	76	6	22	8,4	52	40	140	125	185	170
RM BR50	50	110	50	36	25	95	0	26	8,4	65	50	165	150	215	200
RM BR63	63	140	63	50	33	112	0	33	11,4	75	63	210	170	270	230
RM BR80	80	170	80	50	45	140	0	39	11,4	95	80	250	210	320	280

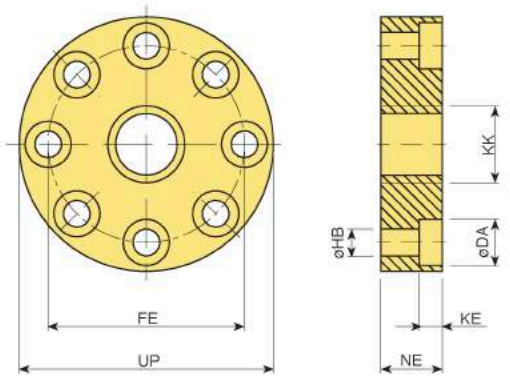


Clevis bracket, form B

Port No.	CK H9	CL h16	CM A12	FL Js12	HB H13	LE	MR	RC Js14	TB Js14	UR	UH
RN BR12	12	28	12	34	9	22	12	25	55	55	85
RN BR16	16	36	16	40	11	27	16	32	65	60	105
RN BR20	20	45	20	45	11	30	20	40	85	70	113
RN BR25	25	56	25	55	13,5	37	25	50	110	85	143
RN BR32	32	70	32	65	17,5	43	32	65	130	108	170
RN BR40	40	90	40	76	22	52	40	80	170	130	220
RN BR50	50	110	50	95	26	65	50	100	210	160	270
RN BR63	63	140	63	112	33	75	63	125	250	210	320
RN BR80	80	170	80	140	39	95	80	140	290	230	370

Mounting Parts

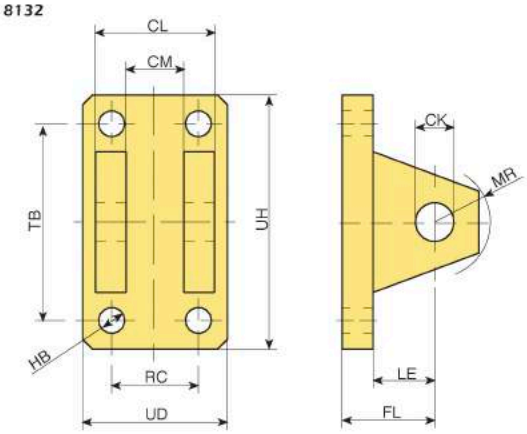
ISO 8132



Rod flanges

Part No.	KK	DA H13	FE Js13	HB H13	KE +0,4 0	NE h13	UP
RF BK12	M12x1,25	11	40	4x Ø6,6	6,8	17	56
RF BK14	M14x1,5	14,5	45	4x Ø9	9	19	63
RF BK16	M16X1,5	14,5	54	6x Ø9	9	23	72
RF BK20	M20x1,5	14,5	63	6x Ø9	9	29	82
RF BK27	M27x2	17,5	78	6x Ø11	11	37	100
RF BK33	M33x2	20	95	8x Ø13,5	13	46	120
RF BK42	M42x2	26	120	8x Ø17,5	17,5	57	150
RF BK48	M48x2	33	150	8x Ø22	21,5	64	190
RF BK64	M64x3	39	180	8x Ø26	25,5	86	230

ISO 8132

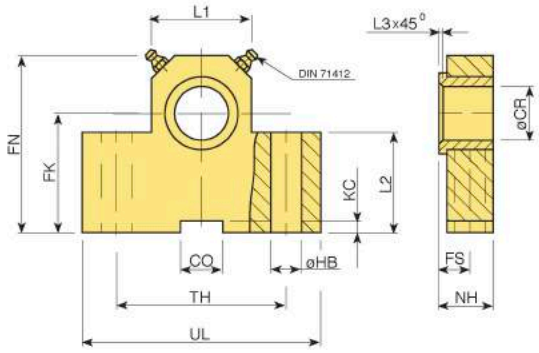


Clevis bracket, form A

Part No.	CK H9	CL h16	CM A12	FL Js12	HB H13	LE	MR	RC Js14	TB Js14	UD	UH
RL BA012	12	28	12	34	9	22	12	20	50	40	70
RL BA016	16	36	16	40	11	27	16	26	65	50	90
RL BA020	20	45	20	45	11	30	20	32	75	58	98
RL BA025	25	56	25	55	13,5	37	25	40	85	70	113
RL BA032	32	70	32	65	17,5	43	32	50	110	85	143
RL BA040	40	90	40	76	22	52	40	65	130	108	170
RL BA050	50	110	50	95	26	65	50	80	170	130	220
RL BA063	63	140	63	112	33	75	63	100	210	160	270
RL BA080	80	170	80	140	39	95	80	125	250	210	320

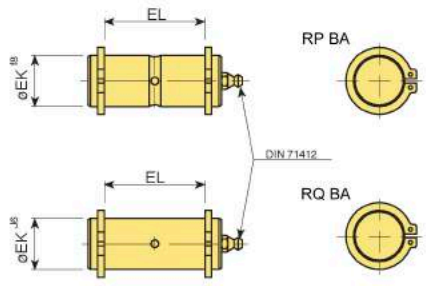
Trunnion bracket

ISO 8132



Part No.	CR H7	CO N9	FK Js12	FN	FS Js14	HB H13	KC +0,3 0	L1	L2	L3	NH	TH Js14	UL
RT BA012	12	10	34	50	8	9	3,3	25	25	1	17	40	63
RT BA016	16	16	40	60	10	11	4,3	30	30	1	21	50	80
RT BA020	20	16	45	70	10	11	4,3	40	38	1,5	21	60	90
RT BA025	25	25	55	80	12	13,5	5,4	56	45	1,5	26	80	110
RT BA032	32	25	65	100	15	17,5	5,4	70	52	2	33	110	150
RT BA040	40	36	76	120	16	22	8,4	88	60	2,5	41	125	170
RT BA050	50	36	95	140	20	26	8,4	100	75	2,5	51	160	210
RT BA063	63	50	112	180	25	33	11,4	130	85	3	61	200	265
RT BA080	80	50	140	220	31	39	11,4	160	112	3	81	250	325

ISO 8132



Part No.	EK f8	EL H16
RP BA012	12	29
RP BA016	16	37
RP BA020	20	46
RP BA025	25	57
RP BA032	32	72
RP BA040	40	92
RP BA050	50	112
RP BA063	63	142
RP BA080	80	172

Part No.	EK j6	EL H16
RQ BA012	12	29
RQ BA016	16	37
RQ BA020	20	46
RQ BA025	25	57
RQ BA032	32	72
RQ BA040	40	92
RQ BA050	50	112
RQ BA063	63	142
RQ BA080	80	172

Long Stroke Cylinder

Rotary Cylinder

Ceramic Cylinder

AGC Cylinder

Large Cylinder

We design and manufacture top quality hydraulic cylinders.

ISO Mill Type Cylinder

With BRANT, you have more competitiveness.

Servo Cylinder

Damper

Cylinder with Linear Transducer

Swivel Cylinder

JOHS 110 Mill Type Cylinder

Press Cylinder

Custom Design Cylinder

BRANT HYDRAULICS

BRANT HYDRAULICS CORPORATION

(a member of Brant Science & Technology Group)

Address: Rm. 3A08, No. 5, Hsin-Yi Rd., Sec. 5, Taipei, Taiwan.
Tel: 886-2-27296709 (Rep.)
FAX: 886-2-27296759
Website: http://www.brant-hydraulics.com
E-mail: sales@brant-hydraulics.com

WE ARE THE RIGHT SUPPLIER FOR YOU !