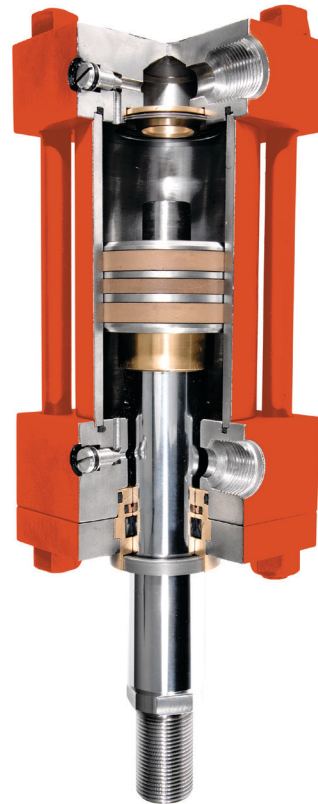


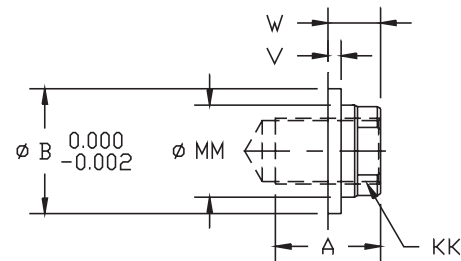
# Bettis GVO-C Series

## GVO-CHP-DA Hydraulic Actuators



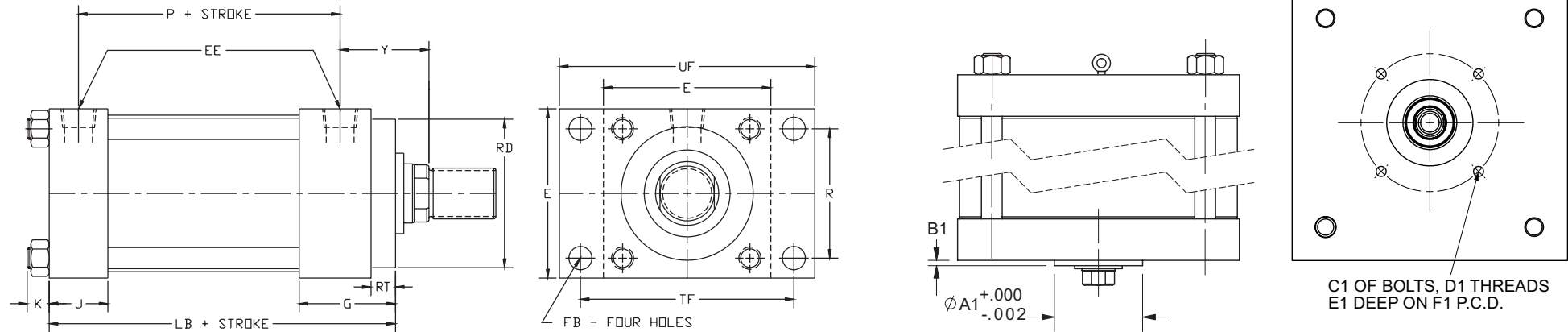
## Rod Thread Size (1-1/2" to 6" Bore)

### SMALL FEMALE ROD END



Dimensions (in)						
Bore	Rod $\varnothing$ MM	KK	A	B	V	W
1½	0.63	7/16-20	0.75	1.13	0.25	0.63
2	1.00	¾-16	1.13	1.50	0.25	0.75
2½	1.00	¾-16	1.13	1.50	0.25	0.75
3¼	1.38	1-14	1.63	2.00	0.25	0.88
4	1.75	1¼-12	2.00	2.38	0.25	1.00
5	2.00	1½-12	2.25	2.63	0.25	1.13
6	2.50	1¾-12	3.00	3.13	0.25	1.25
7	3.00	2¼-12	3.50	3.75	0.25	1.25
8	3.50	2½-12	3.50	4.25	0.25	1.25
10	4.50	3¼-12	4.50	5.25	0.25	1.50
12	5.50	4-12	5.50	6.25	0.25	1.50
14	7.00	5-12	7.00	8.00	0.38	1.56

## Actuator Dimensions (1-1/2" to 8" Bore)



Dimensions (in)										
BORE	E	EE		FB	R	TF	UF	LB	RD	RT
		NPT	SAE							
1½	2.50	0.50	10	0.44	1.63	3.44	4.25	5.00	2.13	0.38
2	3.00	0.50	10	0.25	2.05	4.13	5.13	5.25	2.50	0.38
2½	3.50	0.50	10	0.25	2.55	4.63	5.63	5.38	2.50	0.38
3¼	4.50	0.75	12	0.69	3.25	5.88	7.13	6.25	3.00	0.63
4	5.00	0.75	12	0.69	3.82	6.38	7.63	6.63	3.50	0.63
5	6.50	0.75	12	0.94	4.95	8.19	9.75	7.13	4.00	0.75
6	7.50	1.00	16	1.06	5.73	9.44	11.25	8.38	4.50	0.88
7	8.50	1.25	20	1.19	6.58	10.63	12.63	9.50	5.25	0.63
8	9.50	1.50	24	1.19	7.50	11.81	14.00	10.50	5.75	0.63

MSS Flange Mounting Dimensions (in)							
MSS FLANGE	MAX. THRUST (lbs.)	A1	B1	C1	D1	E1	F1
FA07	4,500	2.10	0.12	4	5/16-18	1 1/16	2.75
FA10	9,000	2.30	0.12	4	3/8-16	1 1/16	4.00
FA14	25,000	3.75	0.16	4	5/8-11	1 3/16	5.50
FA16	35,000	5.00	0.19	4	3/4-10	1 1/8	6.50
FA25	50,000	6.00	0.19	8	5/8-11	1 1/8	10.00
FA30	75,000	7.00	0.19	8	3/4-10	1 1/8	11.75
FA35	140,000	8.50	0.19	8	1-8	1 1/4	14.00
FA40	230,000	9.00	0.32	8	1 1/4-7	1 1/2	16.00

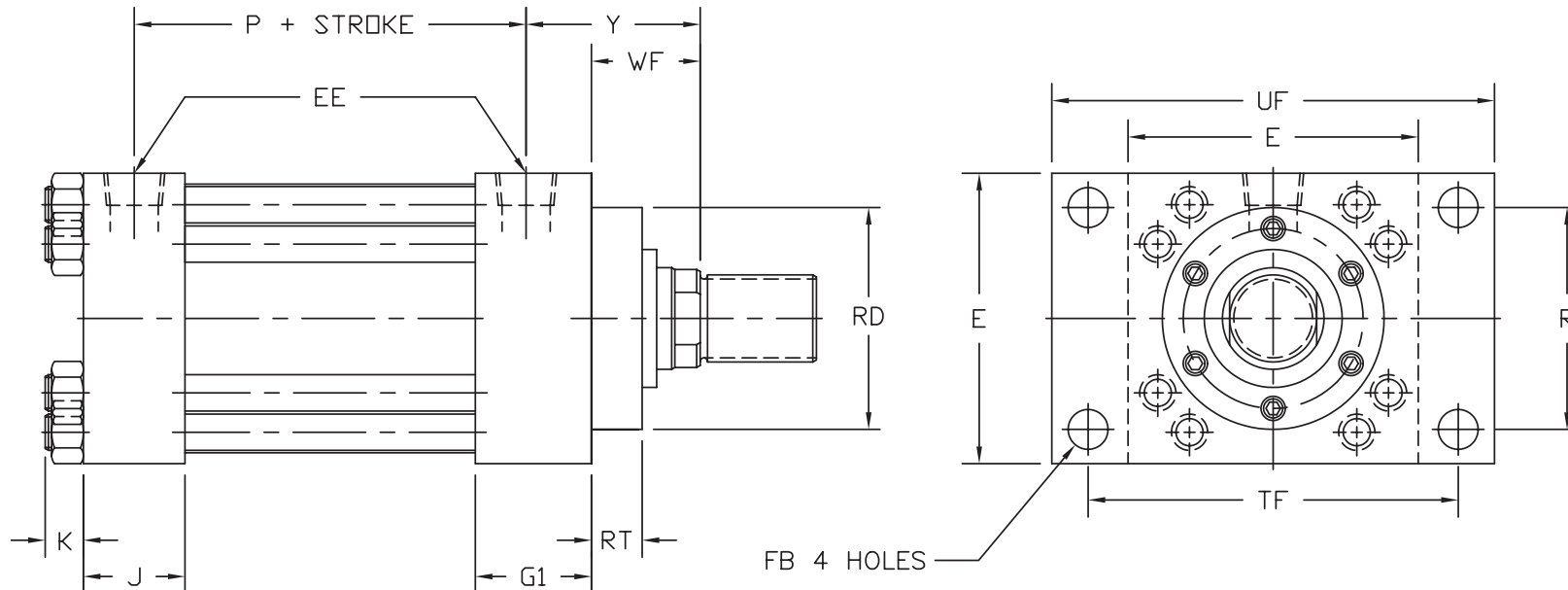
Consult factory for more detailed dimensions

\*Other Mounting Patterns are available; consult factory

Thrust Values (lbs)						ISO or MSS Mounting Pattern*	
BORE	Rod Ø MM	1500 PSI		3000 PSI		STD	OPT
		EXTEND	RETRACT	EXTEND	RETRACT		
1½	0.63	2,650	2,190	5,300	4,380	F/FA10	F/FA07
2	1.00	4,710	3,540	9,420	7,070	F/FA14	F/FA10
2½	1.00	7,360	6,190	14,720	12,370	F/FA14	F/FA10
3¼	1.38	12,440	10,220	24,880	20,430	F/FA14	F/FA10
4	1.75	18,840	15,240	37,680	30,470	F/FA25	F/FA16
5	2.00	29,440	24,730	58,880	49,460	F/FA30	F/FA25
6	2.50	42,390	35,040	84,780	70,070	F/FA35	F/FA30
7	3.00	57,700	47,100	115,400	94,200	F/FA35	F/FA30
8	3.50	75,360	60,940	150,720	121,880	F/FA40	F/FA35

ISO Flange Mounting Dimensions (mm)							
ISO FLANGE	MAX. THRUST (N)	A1	B1	C1	D1	E1	F1
F07	19,995	55	3	4	M8	11	70
F10	39,990	70	3	4	M10	16	102
F14	99,996	99	4	4	M16	19	140
F16	150,007	130	5	4	M20	22	165
F25	200,010	200	5	8	M16	22	254
F30	325,014	229	5	8	M20	22	297
F35	700,034	260	5	8	M30	22	356
F40	1,100,054	300	8	8	M36	22	406

## Actuator Dimensions (10" to 14" Bore)



Dimensions (in)											
BORE	E	EE		FB	R	TF	UF	LG	RD	RT	WF
		SAE	SAE-61								
10	12.63	24	2.00	1.81	9.89	15.88	19.00	12.13	8.25	1.44	2.94
12	14.88	24	2.50	2.06	11.75	18.50	22.00	14.50	9.38	1.69	5.38
14	17.13	24	2.50	2.31	12.90	21.00	25.00	15.63	10.50	1.94	5.88

Consult factory for more detailed dimensions and larger sizes

\*Other Mounting Patterns are available; consult factory

Thrust Values (lbs)					
BORE	Rod Ø MM	1500 PSI		3000 PSI	
		EXTEND	RETRACT	EXTEND	RETRACT
10	4.50	117,750	93,910	235,500	187,820
12	5.50	169,560	133,950	339,120	267,890
14	7.00	230,790	173,100	461,580	346,190

## Material Breakdown

Material Breakdown	Standard	Stainless Steel Material Option
Head and cap	Machined Steel	316
Barrel	Honed Seamless Steel Tubing *Optional Chrome Plating available	Application Dependent <i>Consult Factory</i>
Piston	Ductile Iron	Ductile Iron
Piston rod	1045	17-4 PH
Gland	SAE 660 Bronze	SAE 660 Bronze
Tie Rod	Stress-proof Steel	17-4 PH

**World Area Configuration Centers (WACC) offer sales support, service, inventory and commissioning to our global customers.**

**Choose the WACC or sales office nearest you:**

***NORTH & SOUTH AMERICA***

19200 Northwest Freeway  
Houston TX 77065  
USA  
T +1 281 477 4100

Av. Hollingsworth  
325 Iporanga Sorocaba  
SP 18087-105  
Brazil  
T +55 15 3413 8888

***ASIA PACIFIC***

No. 9 Gul Road  
#01-02 Singapore 629361  
T +65 6777 8211

No. 1 Lai Yuan Road  
Wuqing Development Area  
Tianjin 301700  
P. R. China  
T +86 22 8212 3300

***MIDDLE EAST & AFRICA***

P. O. Box 17033  
Jebel Ali Free Zone  
Dubai  
T +971 4 811 8100

P. O. Box 10305  
Jubail 31961  
Saudi Arabia  
T +966 3 340 8650

24 Angus Crescent  
Longmeadow Business Estate East  
P.O. Box 6908 Greenstone  
1616 Modderfontein Extension 5  
South Africa  
T +27 11 451 3700

***EUROPE***

Holland Fasor 6  
Székesfehérvár 8000  
Hungary  
T +36 22 53 09 50

Strada Biffi 165  
29017 Fiorenzuola d'Arda (PC)  
Italy  
T +39 0523 944 411

For complete list of sales and manufacturing sites, please visit [www.emerson.com/actuationtechnologieslocations](http://www.emerson.com/actuationtechnologieslocations) or contact us at [info.actuationtechnologies@emerson.com](mailto:info.actuationtechnologies@emerson.com)

[www.emerson.com/bettis](http://www.emerson.com/bettis)

©2019 Emerson. All rights reserved.

The Emerson logo is a trademark and service mark of Emerson Electric Co. Bettis™ is a mark of one of the Emerson family of companies. All other marks are property of their respective owners.

The contents of this publication are presented for information purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available on request. We reserve the right to modify or improve the designs or specifications of our products at any time without notice.