- Medium duty to extremely heavy duty linear motion
- Powered by the 3MA or 4MA NFPA cylinder, with ISO options available
- Bore sizes 1-1/2", 2", and 2-1/2"
- Thrust, reach, and compact versions available
- Shock absorber, bumpers/stop collars, and proximity sensor options available

Operating information

Operating pressure:	Maximum	100 PSIG (7 bar), air – 4MAJ cylinder 150 PSIG (10 bar), air – P1D cylinder 250 PSIG (17 bar), air – 3MA, 4MA and 2A cylinders 400 PSIG (28 bar), oil – 4ML cylinder only 750 PSIG (52 bar), oil – 3L cylinder only
Temperature range:	Cylinder	Standard seals 0°F to 165°F (-18°C to 74°C) Fluorocarbon seals* 0°F to 250°F (-18°C to 121°C)
		* See fluorocarbon seal option for high temperature applications. Not available for 3MA or rod lock cylinders.
Filtration requirements:		40 micron, dry filtered air

For technical information see CD

Ordering information for HBC, HBT and HBR

HBT	25	–	08	A	P1	T	F	4A		–	B	

Series	
HBC	Compact slide
HBT	Thrust slide
HBR	Reach slide

Model	
15	1-1/2" bore, 20mm shaft
20	2" bore, 25mm shaft
25	2-1/2" bore, 30mm shaft

Stroke length
Order in 1" increments. [4]
For 3-position units, specify intermediate and total stroke separated by a "/", i.e. 02/06.
Consult factory for strokes over 36".

Bushings	
T	Composite (standard)
D	Linear ball bearing
T1	Composite with oversized support shafts
TC	Composite with contaminant-tolerant seals

Design Series	
B	Current design level

Special Options
Blank standard
(Two digit code assigned by factory and applies when any "X" appears in the model number or when special options or features are required.)

Slide Configuration Options	
Blank	None
A	Shock absorber, both ends
A1	Shock absorber, extend only
A2	Shock absorber, retract only
A3	Shock ready, both ends
A4	Shock ready, extend
A5	Shock ready, retract
B	Bumpers both ends [1]
B1	Bumper & adjustable stop collar, extend only
B2	Bumper retract only
B3	Bumper & adjustable stop collar, retract only
B4	Bumper & adjustable stop collar, both ends
C	Cushions on cylinder, both ends [2]
C1	Cushion on cylinder, extend only [2]
C2	Cushion on cylinder, retract only [2]
X	Special slide configuration (please specify)

Proximity Sensor Options	
Blank	None
P	PNP, flying lead type
N	NPN, flying lead type
P1	PNP, plug-in connector
N1	NPN, plug-in connector
J	8mm sensor mounting bracket, no sensor supplied
J1	12mm sensor mounting bracket, no sensor supplied

Note: 8mm inductive proximity sensors are included with Options P, N, P1, N1. Magnetic piston is standard for 3MA, 4MA, 4MAJ, 4ML and P1D cylinders. Order reed and solid state sensors separately for these cylinders from the Electronic Sensors section.

Other Options (More than one selection is possible)	
Blank	None
F	Flow controls (presto-lok)
G	Flow controls (NPT)
K	Stainless steel support shafting

Cylinder Options (More than one selection is possible)	
Blank	None
V	Fluorocarbon cylinder seals [3]
L1	Left hand assembly
L3	Cylinder ports at position [3]

Cylinder Type	
3A	3MA NFPA air cylinder, NPTF ports [2]
4A	4MA NFPA air cylinder, NPTF ports
4J	4MAJ NFPA air cylinder with manual override rodlock, NPTF ports, 100 PSIG max.
D	P1D ISO cylinder w/ removable gland, BSPP ports
D1	P1D ISO cylinder w/ removable gland, Standard Rodlock, BSPP ports
D2	P1D ISO cylinder w/ removable gland, manual override rodlock, BSPP ports
E	P1D ISO cylinder w/ removable gland, NPTF ports
E1	P1D ISO cylinder w/ removable gland, standard rodlock, NPTF ports
E2	P1D ISO cylinder w/ removable gland, manual override rodlock, NPTF ports
4L	4ML NFPA hydraulic cylinder, NPTF ports, 400 PSIG max. [2]
S	2A NFPA steel air cylinder, 250 PSIG max.
S1	3L NFPA steel hydraulic cylinder, 750 PSIG max.
Q	No cylinder, NFPA cylinder mounting
Q1	No cylinder, ISO cylinder mounting
X	Special cylinder type (please specify)

NOTES
1 Option B includes options B1 and B2.
2 Cushions are not available with 4ML cylinders or 3MA cylinders on HB products.
3 Fluorocarbon seals not available with 3MA or rodlock cylinders.
4 P1D cylinders have strokes only in whole mm. The HB inch stroke will be changed (rounded up) to reflect this.

Sensors
For sensors see page B294.

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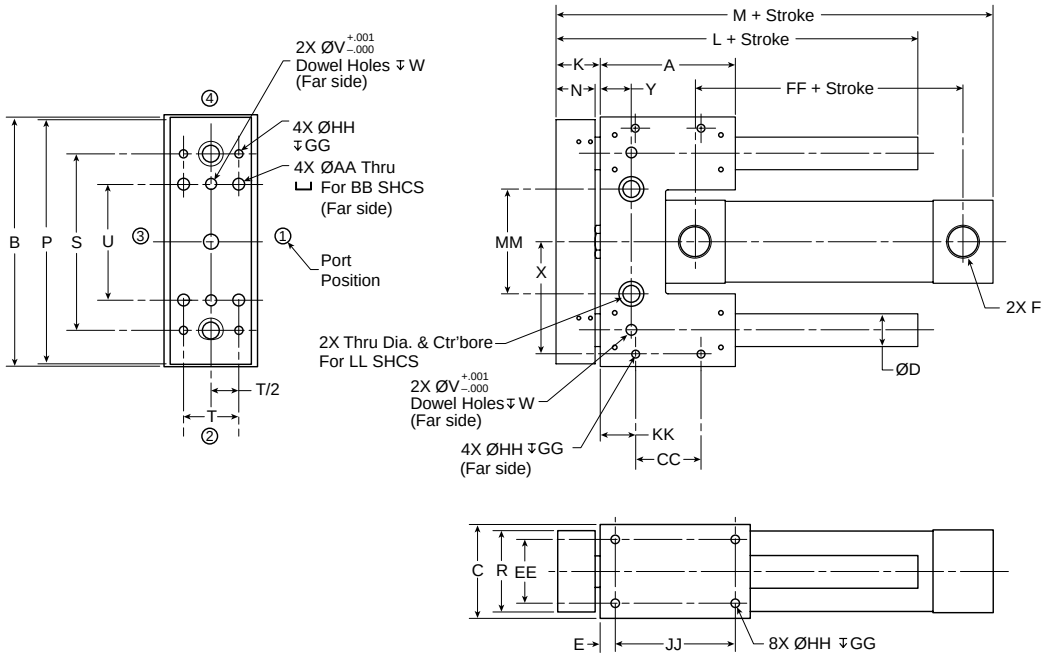
HBC Series



Model number	A	B	C	Ds*	Do**	E	F NPTF	F BSPP	K	L	M	N	P	R	S	T	U
15[1]	3.25	6.00	2.25	20mm (0.79)	25mm (0.98)	0.375	1/4[1]	1/4	1.06	5.19	6.26	0.94	5.88	1.94	4.250	1.375	2.750
20	4.00	7.25	2.75	25mm (0.98)	30mm (1.18)	0.500	3/8	1/4	1.31	6.39	7.00	1.19	7.13	2.44	5.000	1.750	3.250
25	5.00	9.00	3.25	30mm (1.18)	35mm (1.38)	0.500	3/8	3/8	1.56	7.82	8.38	1.44	8.88	2.88	6.500	2.000	3.750

Model number	V	W	X	Y	AA	BB	CC	EE	FF	GG	HH	JJ	KK	LL	MM
15[1]	0.251	0.27	2.750	0.750	0.28	1/4	1.750	1.500	2.31	0.50	1/4-20	2.50	0.75	3/8	2.500
20	0.313	0.33	3.250	0.750	0.34	5/16	2.250	1.750	2.31	0.63	5/16-18	3.00	0.88	3/8	3.000
25	0.376	0.39	4.000	1.532	0.41	3/8	3.000	2.250	2.38	0.75	3/8-16	4.00	1.00	1/2	4.000

* Standard shafting
** Oversized shafting
1 Model 15 with Cylinder Type 3A (3MA cylinder) has 3/8" NPTF ports.

All dimensions in inches unless otherwise noted.

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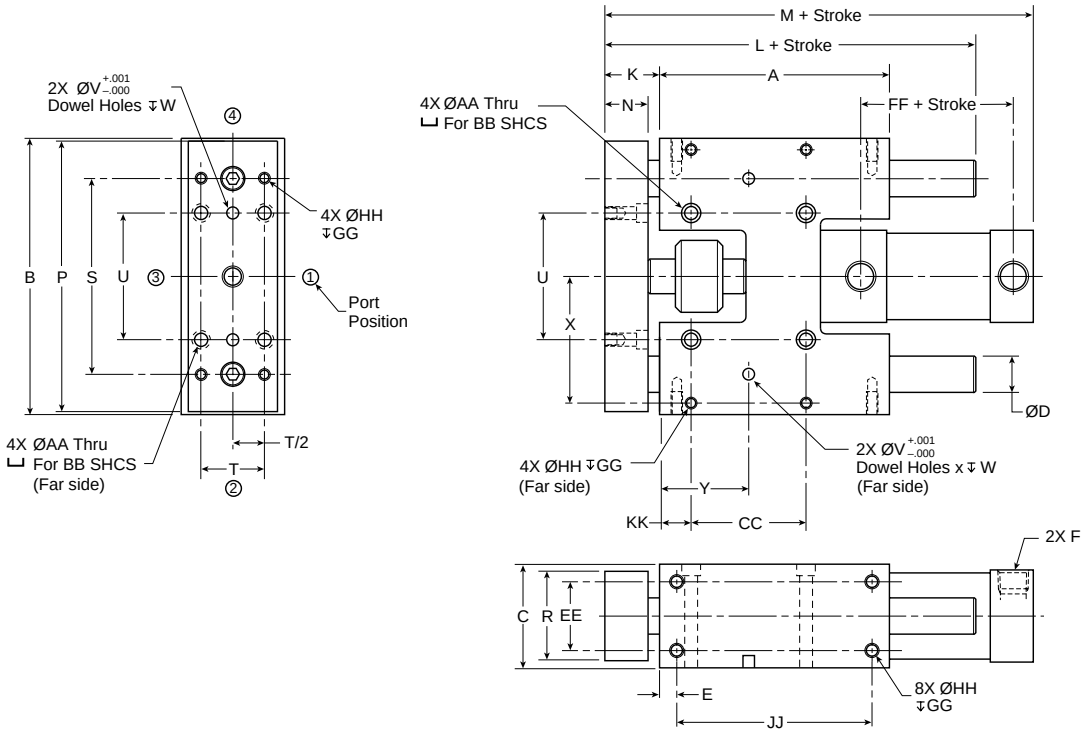
HBT Series



Model number	A	B	C	Ds*	Do**	E	F NPTF	F BSPP	K	L	M	N	P	R	S	T
15	5.0	6.00	2.25	20mm (0.79)	25mm (0.98)	0.375	1/4 1	1/4	1.06	6.94	8.19	0.94	5.88	1.94	4.250	1.375
20	5.5	7.25	2.75	25mm (0.98)	30mm (1.18)	0.500	3/8	1/4	1.31	7.88	8.94	1.19	7.13	2.44	5.000	1.750
25	6.5	9.00	3.25	30mm (1.18)	35mm (1.38)	0.500	3/8	3/8	1.56	9.31	10.31	1.44	8.88	2.88	6.500	2.000

Model number	U	V	W	X	Y	AA	BB	CC	EE	FF	GG	HH	JJ	KK
15	2.750	0.251	0.27	2.750	1.938	0.28	1/4	2.500	1.500	2.31	0.50	1/4-20	4.25	0.69
20	3.250	0.313	0.33	3.250	2.250	0.34	5/16	2.750	1.750	2.31	0.63	5/16-18	4.50	0.88
25	3.750	0.376	0.39	4.000	2.750	0.41	3/8	3.500	2.250	2.38	0.75	3/8-16	5.50	1.00

* Standard shafting
** Oversized shafting
1 Model 15 with Cylinder Type 3A (3MA cylinder) has 3/8" NPTF ports.

All dimensions in inches unless otherwise noted.

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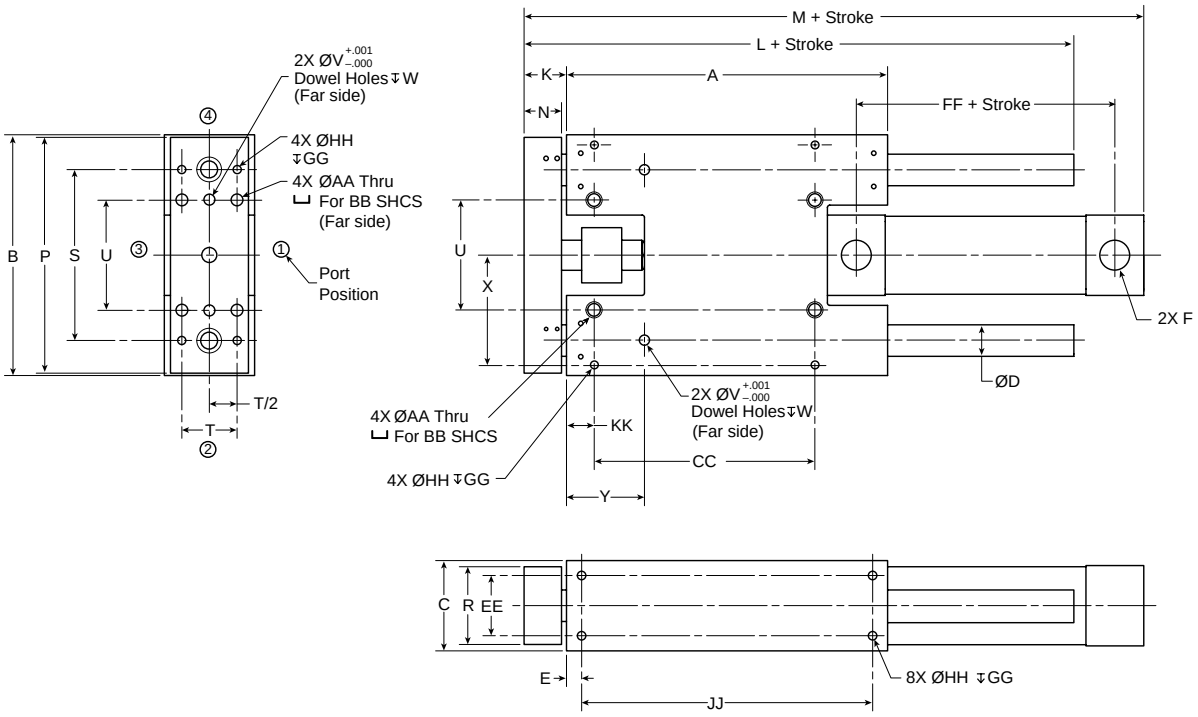
HBR Series



Model number	A	B	C	Ds*	Do**	E	F NPTF	F BSPP	K	L	M	N	P	R	S	T
15	8.00	6.00	2.25	20mm (0.79)	25mm (0.98)	0.375	1/4 1	1/4	1.06	9.94	11.19	0.94	5.88	1.94	4.250	1.375
20	10.00	7.25	2.75	25mm (0.98)	30mm (1.18)	0.500	3/8	1/4	1.31	12.39	13.44	1.19	7.13	2.44	5.000	1.750
25	12.00	9.00	3.25	30mm (1.18)	35mm (1.38)	0.500	3/8	3/8	1.56	14.82	15.82	1.44	8.88	2.88	6.500	2.000

Model number	U	V	W	X	Y	AA	BB	CC	EE	FF	GG	HH	JJ	KK
15	2.750	0.251	0.27	2.750	1.938	0.28	1/4	5.500	1.500	2.31	0.50	1/4-20	7.25	0.69
20	3.250	0.313	0.33	3.250	2.250	0.34	5/16	7.250	1.750	2.31	0.63	5/16-18	9.00	0.88
25	3.750	0.376	0.39	4.000	2.760	0.41	3/8	9.000	2.250	2.38	0.75	3/8-16	11.00	1.00

* Standard shafting
** Oversized shafting
1 Model 15 with Cylinder Type 3A (3MA cylinder) has 3/8" NPTF ports.

All dimensions in inches unless otherwise noted.

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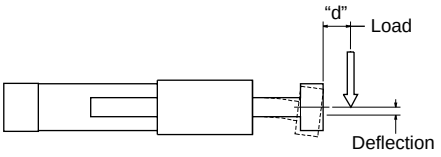
Horizontal Load Capacity & Deflection with Standard Shafting

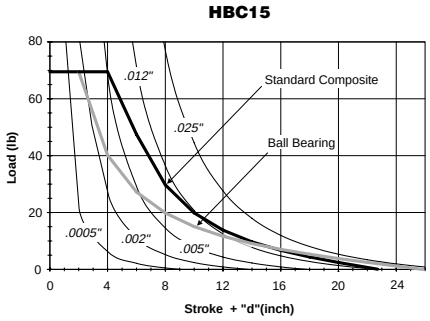
The graphs illustrate the side load vs. actuator stroke for the three HB slide sizes. Applied loads will cause a slight deflection of the support rods. The graphs include the weight of the support rods and tooling plate and are based on a bearing life equivalent to 10 million cycles for dynamic conditions. Higher dynamic loads will reduce cycle life. For static loads, multiply the information in the graph by 1.5.

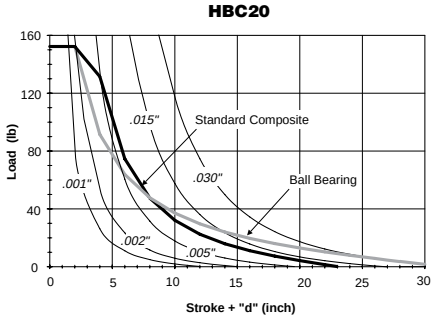
Note: Actuator life may vary depending on the severity of the following variables:

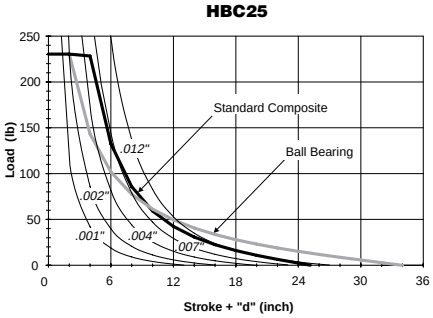
- Acceleration
- Velocity
- Vibration
- Orientation

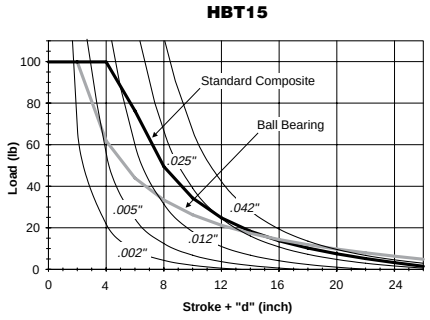


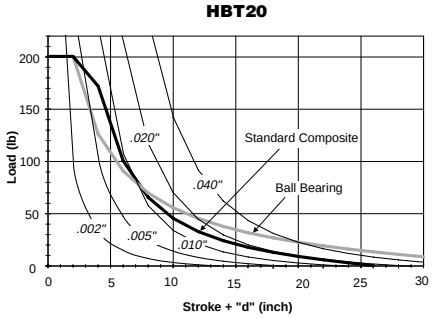
EXAMPLE:
An HBT15 with ball bearings and a "stroke+d" of 12" would have a load capacity of 20 lbs.

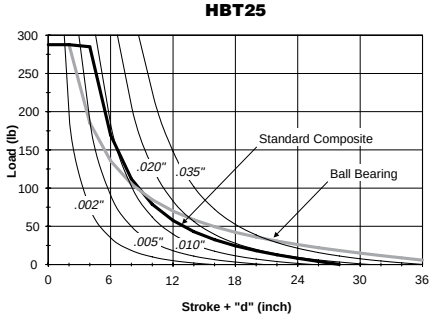


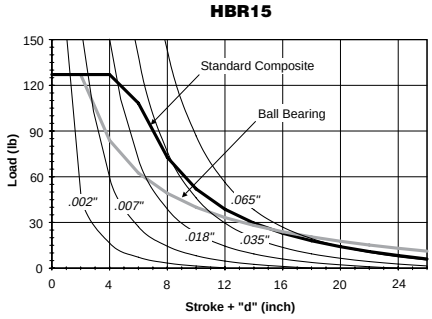


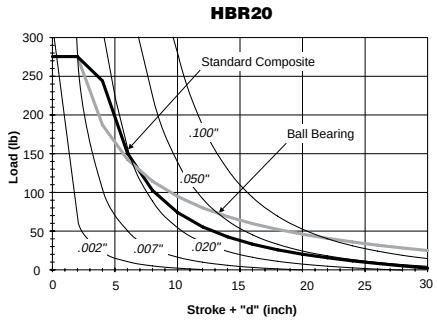


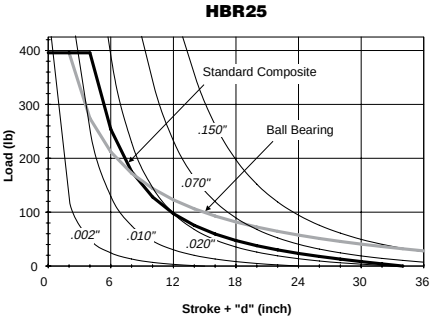












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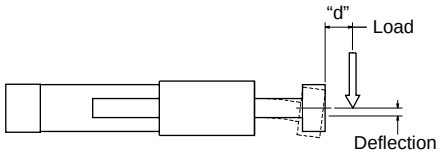
Horizontal Load Capacity & Deflection with Oversized Shafting

The graphs illustrate the side load vs. actuator stroke for the three HB slide sizes. Applied loads will cause a slight deflection of the support rods. Deflection distance is also shown. The graphs include the weight of the support rods and tooling plate and are based on a bearing life equivalent to 10 million cycles for dynamic conditions. Higher dynamic loads will reduce cycle life. For static loads, multiply the information in the graph by 1.5.

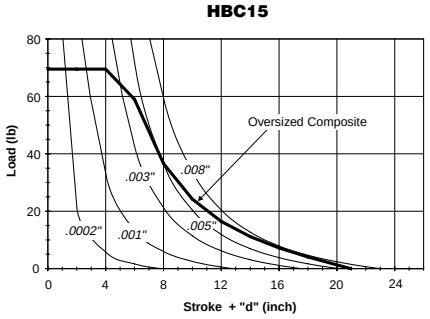
Note: Actuator life may vary depending on the severity of the following variables:

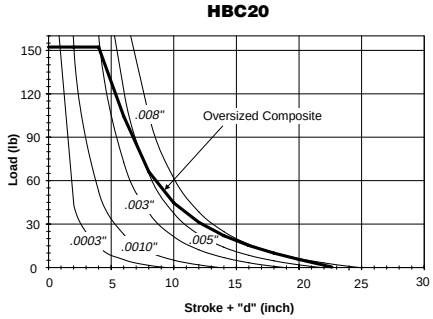
- Acceleration
- Velocity
- Vibration
- Orientation

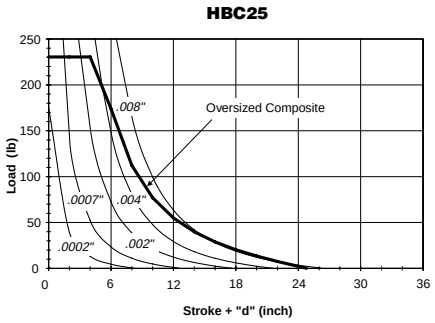


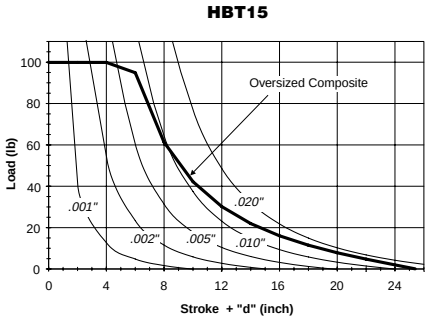
EXAMPLE:

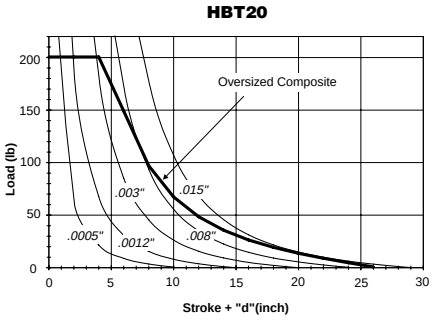
An HBT15 with oversized composite bushings and a "stroke+d" of 8" would have a load capacity of 60 lbs.

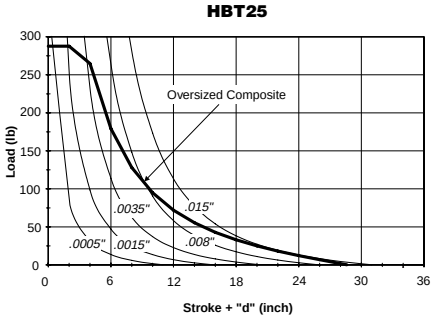


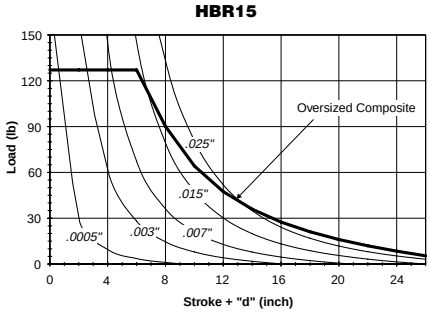


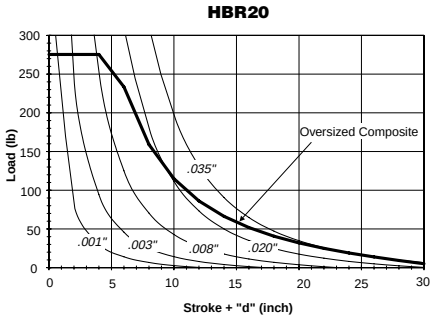


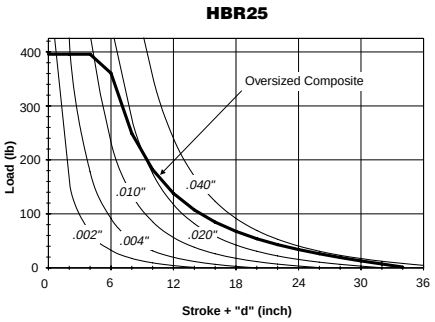












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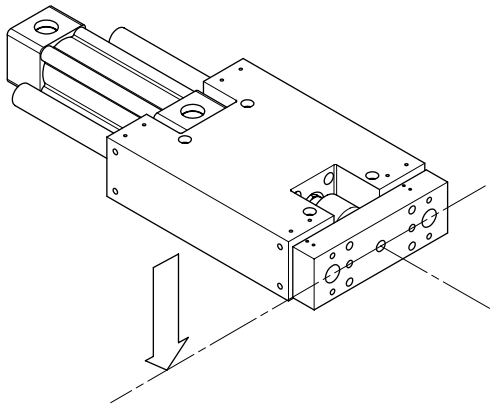
Asymmetrical Torque Capacity

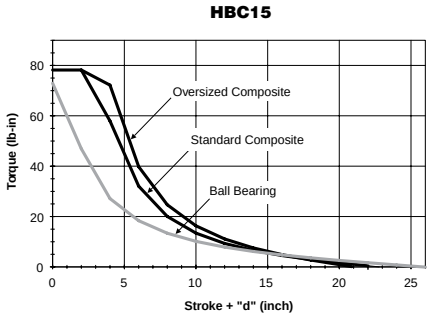
Asymmetrical loading occurs when the load is applied to one side of the unit. HB Series units can resist torsional loads that are asymmetrical. The graphs show torsional load capacity for both standard and oversized shafting under dynamic conditions For static applications, multiply the information in the graphs by 1.5. The vertical load for HBN does not include the weight of the tool plate and support rods.

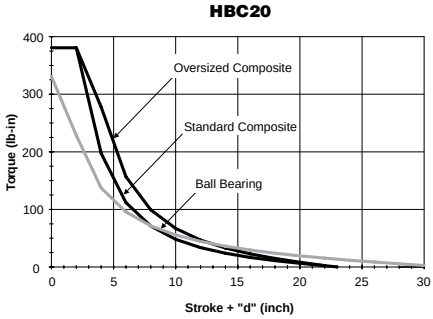
Note: Actuator life may vary depending on the severity of the following variables:

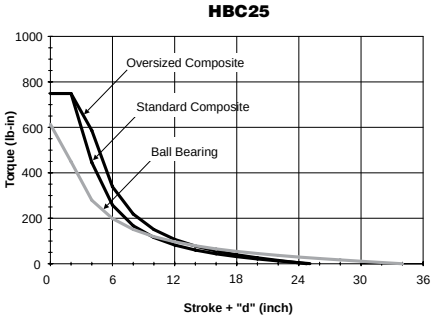
- Acceleration
- Velocity
- Vibration
- Orientation

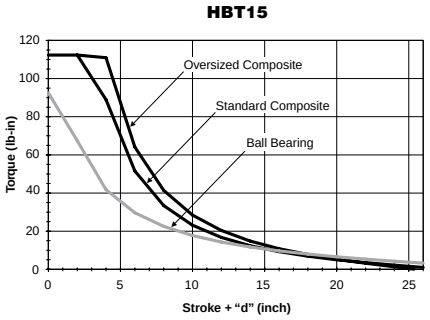
Torsional Load

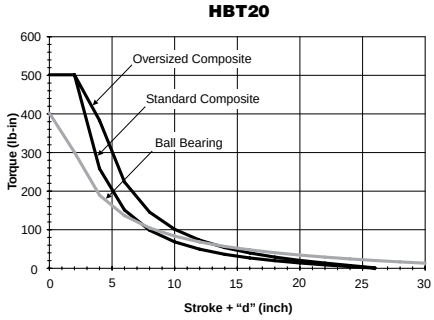


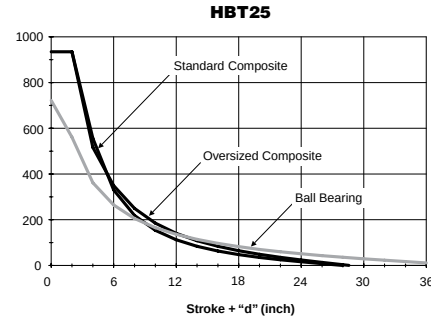


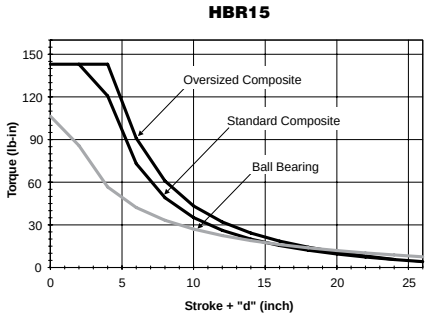


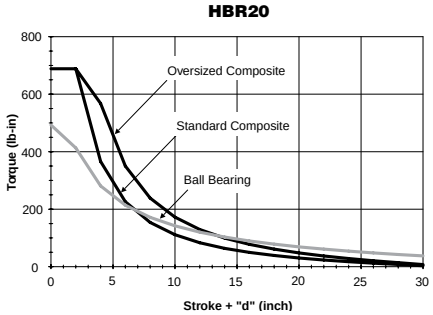


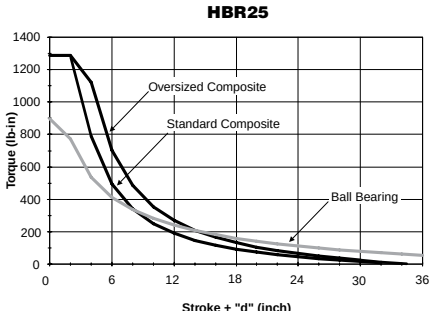












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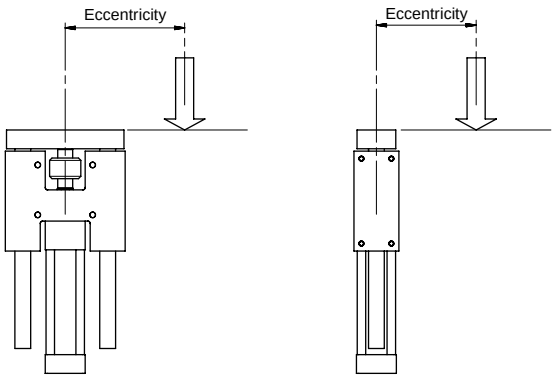
Vertical Eccentric Load Capacity

HB Series units mounted vertically will have the same eccentric load capacity regardless of orientation. The graphs provide maximum load capacity for an eccentric mounted load on a 4" stroke cylinder. The load is assumed to be mounted at the face of the tooling plate.

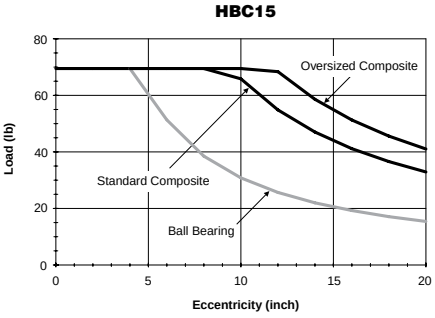
Note: Actuator life may vary depending on the severity of the following variables:

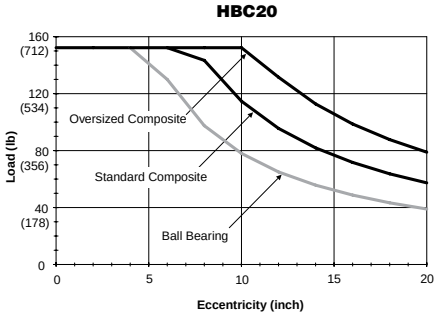
- Acceleration
- Velocity
- Vibration

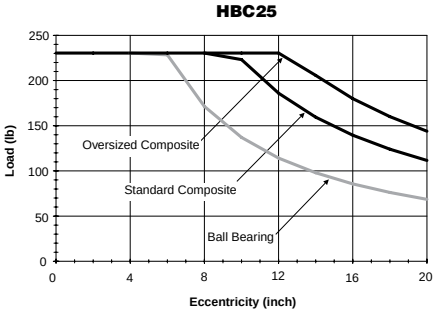


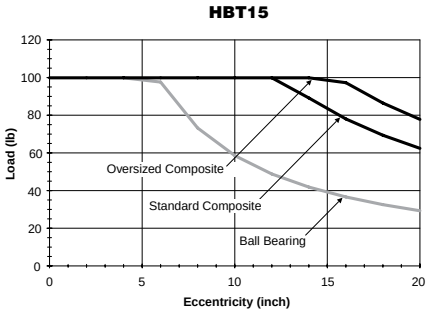
EXAMPLE:

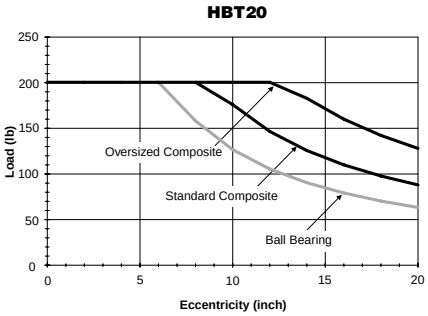
An HBT15 with ball bearings carrying an eccentric load with an eccentricity distance of 15" would have a load capacity of 40 lbs.

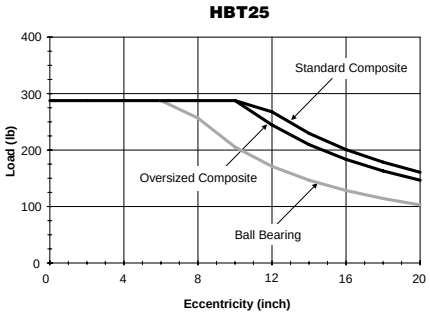


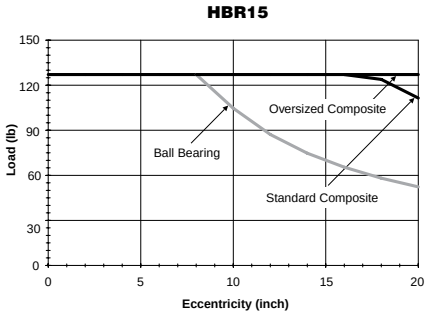


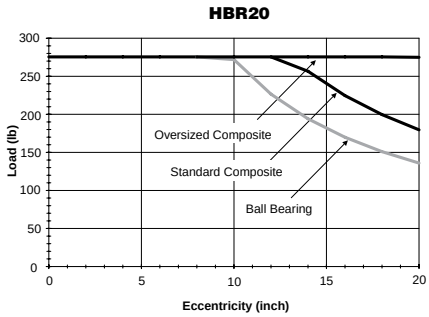


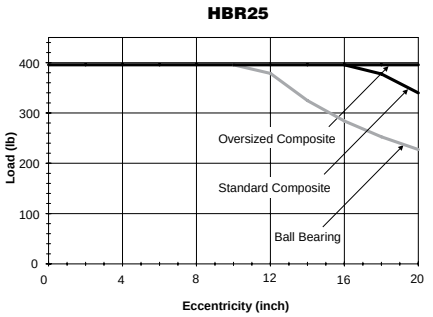












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