

Air Springs



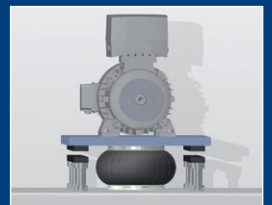
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Air Springs



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Product Range

**Single-Convolution Air Springs
WBE**



**Double-Convolution Air Springs
WBZ**



**Triple-Convolution Air Springs
WBD**



**Air Springs with Aluminium Connection Plates
WBE / WBZ / WBD**



**Air Springs with Threaded Studs
WBE-G / WBZ-G / WBD-G**



**Special Versions
INOX / ECO / HP**



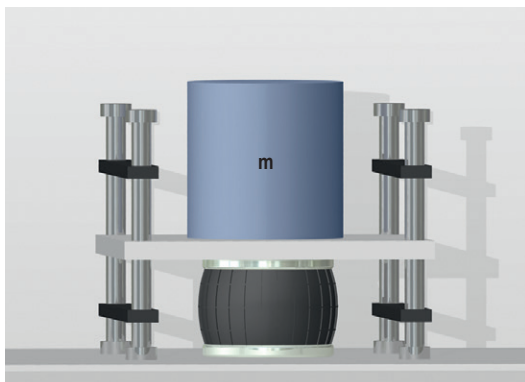
**Rolling Lobes
WSR**



		Actuation	Vibration isolation
1.	Operation pressure	X	X
2.	Required stroke	X	
3.	Mass to be lifted (kg)	X	
4.	Number of air springs (n)	X	X
5.	Min. height for construction (H min; mm)	X	
6.	Smallest diameter for construction (D; mm)	X	X

		Actuation	Vibration isolation
7.	Temperature (T)	X	X
8.	Mass to be supported (m; kg)		X
9.	Smallest height for construction (H; mm)		X
10.	Exciting frequency or rate of revolutions (ferr; Hz) / (cps / min; 1 Hz=1/s; 1/min=1/60s)		X
11.	Desired degree of isolation (lg; %)		X

A ACTUATION



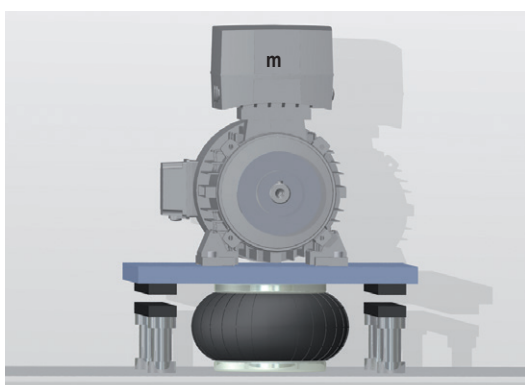
$p = 6 \text{ bar}$
 $S_{\text{min}} = 200 \text{ mm}$
 $m = 2000 \text{ kg}$
 $n = 4$
 $H_{\text{min}} = 100 \text{ mm}$
 $D = 400 \text{ mm}$
 $T = 30 \text{ }^\circ\text{C}$

1. $p \leq p_{\text{max}}$
 2. $S \geq S_{\text{min}}$
 3. $F_t \geq F$ $F = \frac{\text{kg} \times g}{n}$
 5. $H_{\text{min}} \leq H$
 6. $D \geq E$
 7. T

1. $6 \text{ bar} < 8 \text{ bar}$
 2. $215 \text{ mm} > 200 \text{ mm}$
 3. $35000 \text{ N} > 4905 \text{ N}$
 5. $75 \text{ mm} < 100 \text{ mm}$
 6. $400 \text{ mm} > 300 \text{ mm}$
 7. $-40 \text{ }^\circ\text{C} < 30 \text{ }^\circ\text{C} < 70 \text{ }^\circ\text{C}$

WBZ 500

B VIBRATION ISOLATION



$p = 6 \text{ bar}$
 $m = 2000$
 $n = 4$
 $H = 90 \text{ mm}$
 $D = 300 \text{ mm}$

 $f_{\text{err}} = 10 \text{ Hz}$

 $lg = 90 \%$

 $T = 20 \text{ }^\circ\text{C}$

1. $p \leq p_{\text{max}}$
 3. $F_t \geq F$ $F = \frac{\text{kg} \times g}{n}$
 9. $H \geq H_{\text{min}}$
 6. $D \geq E$
 10. $f_o \leq \frac{f_{\text{err}}}{1,44}$
 11. $lg \geq lg \leq 100\%$ $lg = 1 - \left(\frac{f_{\text{err}}}{f_o} \right)^2 - 1$
 7. T

1. $6 \text{ bar} < 8 \text{ bar}$
 2. $5200 \text{ N} > 4905 \text{ N}$
 9. $100 \text{ mm} > 90 \text{ mm}$
 6. $300 \text{ mm} > 180 \text{ mm}$
 10. $2,9 < 6,94 \text{ Hz}$
 11. $90,9\% > 90\% < 100\%$
 7. $-40 \text{ }^\circ\text{C} < 30 \text{ }^\circ\text{C} < 70 \text{ }^\circ\text{C}$

WBE 200

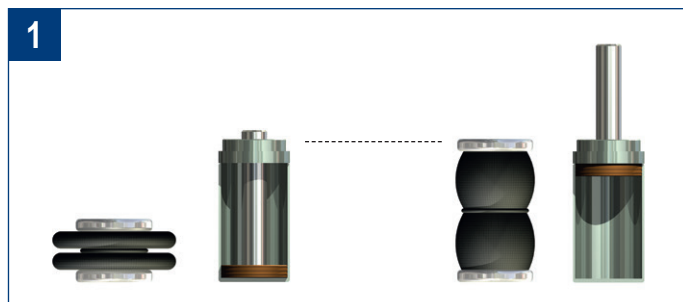
LEGEND

m (kg)	Mass
S (m)	Stroke
S min (m)	minimum stroke
n	Number of air springs
p (bar)	Operation pressure
E (mm)	Smallest diameter for the air spring

D (mm)	Smallest diameter for the construction
H (mm)	Smallest height for construction
H min (mm)	Smallest height for the air spring (without stroke)
F (N)	Calculated load per air spring
Ft (N)	Maximum load per air spring

ferr (Hz)	Smallest exciting frequency
fo (Hz)	Natural frequency
lg (%)	Calculated degree of isolation
lg (%) optimal: 70 - 99 %	Desired degree of isolation
g (m/s²)	9,81 m/s ²

BENEFITS



FEATURES

- Compact design (1)
- Lateral misalignment: Weforma - air springs can be used with a misalignment of up to 30 mm
- Tilt capability (2)
- Dual function - combining vibration isolation with height adjustment
- Insulating properties irrespective of load
- Easy installation
- Maintenance free
- No friction (no stick-slip-effect)
- CrVI-free according to 2002/95/EG
- RoHS compliant Directive 2002/95/EC

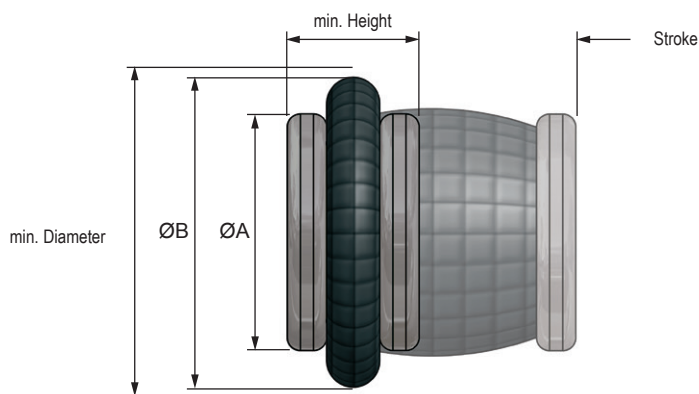


ORDERING INFORMATION

WBZ 500-E2

- WBZ** - Double convoluted air spring
- 500** - Size
- E2** - Air connection G 1/4

WBE



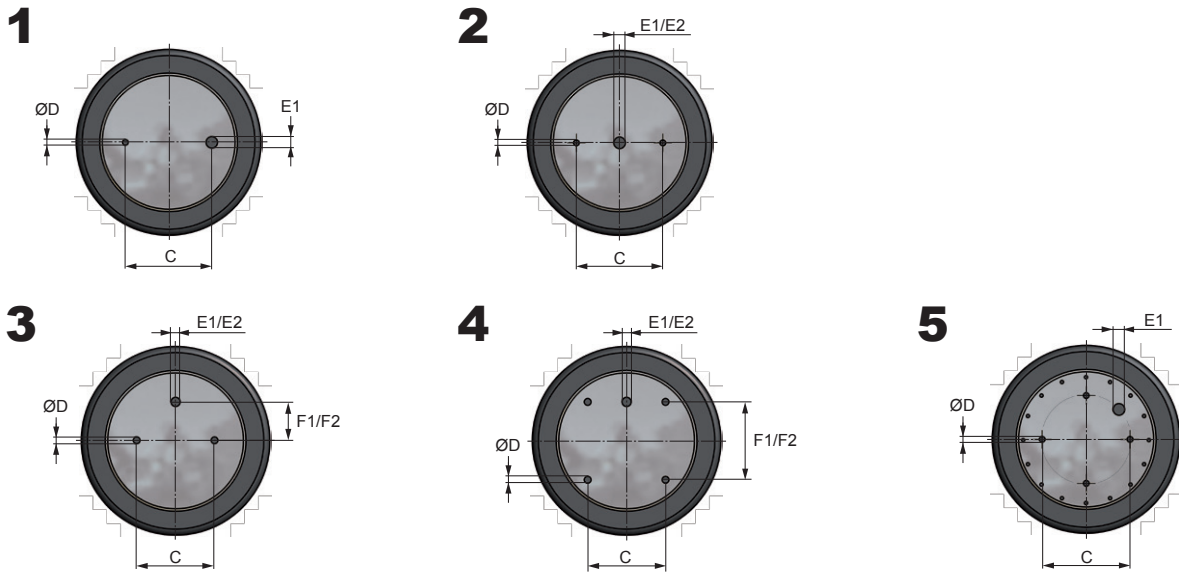
DIMENSIONS

** E1 - F1 / E2 - F2

Connection	Stroke	min. Diameter	min. Height	ø A	ø B	C	D	F1**	F2**	E1**	E2**	Weight	Volume in litre		
													Hmin	Hmax	
mm / inch (max.)		mm (inch)											kg	Hmin	Hmax
WBE 100	1	60 (2.36)	160 (6.3)	50 (1.97)	90 (3.54)	145 (5.71)	20 (0.79)	M8	-	-	G1/8	-	0,9 (1.98)	0,2	0,6
WBE 150	2	45 (1.77)	165 (6.5)	51 (2.01)	108 (4.25)	165 (6.5)	44,5 (1.75)	M8	-	-	G1/4	-	1,2 (2.65)	0,2	0,6
WBE 200	2	64 (2.52)	180 (7.09)	51 (2.01)	108 (4.25)	165 (6.5)	44,5 (1.75)	M8	-	-	G1/4	-	1,2 (2.65)	0,5	1,1
WBE 250	2	95 (3.74)	225 (8.86)	51 (2.01)	114 (4.49)	210 (8.27)	44,5 (1.75)	M8	-	-	G1/4	-	1,4 (3.09)	1,0	2,2
WBE 300	2	85 (3.35)	230 (9.06)	50 (1.97)	141 (5.55)	215 (8.46)	70 (2.76)	M8	-	-	G3/4	G1/4	2 (4.41)	0,9	2,1
WBE 310	2	100 (3.94)	245 (9.65)	51 (2.01)	141 (5.55)	231 (9.09)	70 (2.76)	M8	-	-	G3/4	G1/4	1,9 (4.19)	0,9	2,4
WBE 320	2	120 (4.72)	250 (9.84)	51 (2.01)	141 (5.55)	235 (9.25)	70 (2.76)	M8	-	-	G3/4	G1/4	1,9 (4.19)	1,2	3,2
WBE 400	3	90 (3.54)	265 (10.43)	51 (2.01)	161 (6.34)	250 (9.84)	89 (3.5)	M8	38,1 (1.5)	44,5 (1.75)	G3/4	G1/4	2,3 (5.07)	1,0	3,1
WBE 410*	3	60 (2.36)	265 (10.43)	80 (3.15)	161 (6.34)	250 (9.84)	89 (3.5)	M8	44,5 (1.75)	-	G1/4	-	2,6 (5.73)	0,9	3,0
WBE 500	3	100 (3.94)	340 (13.39)	51 (2.01)	228 (8.98)	325 (12.8)	157,5 (6.2)	M8	66 (2.6)	73 (2.87)	G1	G1/4	4,1 (9.04)	3,3	7,7
WBE 510*	3	50 (1.97)	340 (13.39)	100 (3.94)	228 (8.98)	325 (12.8)	157,5 (6.2)	M8	73,2 (2.88)	-	G1/4	-	4,3 (9.48)	3,7	7,6
WBE 530	3	130 (5.12)	360 (14.17)	51 (2.01)	228 (8.98)	343 (13.5)	157,5 (6.2)	M8	73 (2.87)	66 (2.6)	G1/4	G3/4	4,3 (9.48)	2,7	8,5
WBE 600	4	125 (4.92)	400 (15.75)	51 (2.01)	287 (11.3)	385 (15.16)	158,8 (6.25)	M8	158,8 (6.25)	158,8 (6.25)	G1	G1/4	5,9 (13.01)	3,3	10,8
WBE 700	4	135 (5.31)	420 (16.54)	51 (2.01)	287 (11.3)	405 (15.94)	158,8 (6.25)	M8	158,8 (6.25)	158,8 (6.25)	G1	G1/4	6,1 (13.45)	3,6	13,0
WBE 730	5	121 (4.76)	490 (19.29)	66 (2.6)	384 (15.12)	452 (17.8)	228,5 (9)	M12	-	-	G3/4	-	22,7 (50.05)	8,4	16,3
WBE 750	5	110 (4.33)	570 (22.44)	67 (2.64)	451 (17.76)	530 (20.87)	305 (12.01)	M12	-	-	G3/4	-	28,6 (63.06)	11,2	21,1

* with Rubber buffer

Operating pressure	0 - 8 bar (0 - 116.03 psi)	Temperature	-40°C - +50°C (+70°C) -40°F - 122°F (+158°F)	Compressed air	oiled / oilfree
Lateral misalignment	max. 10 mm (0.39 in)	Tilt capability	max. 20°	Return force	120 - 300 N (26.98 - 67.44 lbs)



ACTUATION

	Heigth			Load kN (1000*lbs)				Heigth			Load kN (1000*lbs)		
	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)		4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)
WBE 100	60 (2.36)	1,8 (0.4)	3,5 (0.79)	5,2 (1.17)	80 (3.15)	1,4 (0.31)	2,8 (0.63)	4,2 (0.94)	100 (3.94)	0,8 (0.18)	1,6 (0.36)	2,5 (0.56)	
WBE 150	60 (2.36)	2 (0.45)	4 (0.9)	6 (1.35)	70 (2.76)	1,8 (0.4)	3,4 (0.76)	5,1 (1.15)	80 (3.15)	1,5 (0.34)	2,7 (0.61)	4 (0.9)	
WBE 200	60 (2.36)	2,8 (0.63)	4,8 (1.08)	8,2 (1.84)	90 (3.54)	1,5 (0.34)	3,6 (0.81)	5,6 (1.26)	100 (3.94)	1,2 (0.27)	3,1 (0.7)	4,8 (1.08)	
WBE 250	70 (2.76)	3,3 (0.74)	6,6 (1.48)	10,2 (2.29)	100 (3.94)	2,6 (0.58)	5,2 (1.17)	8 (1.8)	120 (4.72)	1,8 (0.4)	3,7 (0.83)	5,8 (1.3)	
WBE 300	60 (2.36)	4,1 (0.92)	8,2 (1.84)	13 (2.92)	90 (3.54)	3,3 (0.74)	6,8 (1.53)	10,8 (2.43)	120 (4.72)	1,9 (0.43)	4,3 (0.97)	6,9 (1.55)	
WBE 310	60 (2.36)	4,7 (1.06)	9,4 (2.11)	14,4 (3.24)	90 (3.54)	4 (0.9)	8 (1.8)	12,2 (2.74)	120 (4.72)	2,8 (0.63)	5,6 (1.26)	8,4 (1.89)	
WBE 320	70 (2.76)	4,6 (1.03)	9,2 (2.07)	13,7 (3.08)	110 (4.33)	3,9 (0.88)	7,8 (1.75)	11,8 (2.65)	150 (5.91)	2,5 (0.56)	5,1 (1.15)	7,9 (1.78)	
WBE 400	60 (2.36)	5,5 (1.24)	11,3 (2.54)	17,1 (3.84)	90 (3.54)	4,6 (1.03)	9,4 (2.11)	14,6 (3.28)	120 (4.72)	3,1 (0.7)	6,2 (1.39)	10,4 (2.34)	
WBE 410	60 (2.36)	5,5 (1.24)	11 (2.47)	17 (3.82)	90 (3.54)	4,6 (1.03)	9,4 (2.11)	14,6 (3.28)	120 (4.72)	3,1 (0.7)	6,2 (1.39)	10,4 (2.34)	
WBE 500	60 (2.36)	10,5 (2.36)	21,6 (4.86)	32,6 (7.33)	90 (3.54)	9,5 (2.14)	19,2 (4.32)	29,1 (6.54)	120 (4.72)	8 (1.8)	15,7 (3.53)	23,8 (5.35)	
WBE 510	60 (2.36)	10,5 (2.36)	22 (4.95)	32 (7.19)	90 (3.54)	9,5 (2.14)	19 (4.27)	29 (6.52)	120 (4.72)	7,5 (1.69)	15,7 (3.53)	23,8 (5.35)	
WBE 530	70 (2.76)	11,4 (2.56)	23 (5.17)	34,9 (7.85)	110 (4.33)	9,9 (2.23)	19,8 (4.45)	30 (6.74)	150 (5.91)	6,7 (1.51)	13,3 (2.99)	20,3 (4.56)	
WBE 600	70 (2.76)	17 (3.82)	32 (7.19)	48,8 (10.97)	110 (4.33)	13,8 (3.1)	27,4 (6.16)	41,7 (9.37)	150 (5.91)	9 (2.02)	19 (4.27)	30 (6.74)	
WBE 700	80 (3.15)	17 (3.82)	33,4 (7.51)	50,3 (11.31)	140 (5.51)	13,3 (2.99)	26,8 (6.02)	40,6 (9.13)	160 (6.3)	11,4 (2.56)	23 (5.17)	35 (7.87)	
WBE 730	80 (3.15)	23,3 (5.24)	46,9 (10.54)	70,9 (15.94)	120 (4.72)	20 (4.5)	40,3 (9.06)	61,3 (13.78)	160 (6.3)	13,1 (2.95)	26,9 (6.05)	42,3 (9.51)	
WBE 750	80 (3.15)	34,5 (7.76)	69,1 (15.53)	104 (23.38)	120 (4.72)	29,9 (6.72)	59,9 (13.47)	90,6 (20.37)	140 (5.51)	25,9 (5.82)	52,3 (11.76)	79,6 (17.89)	

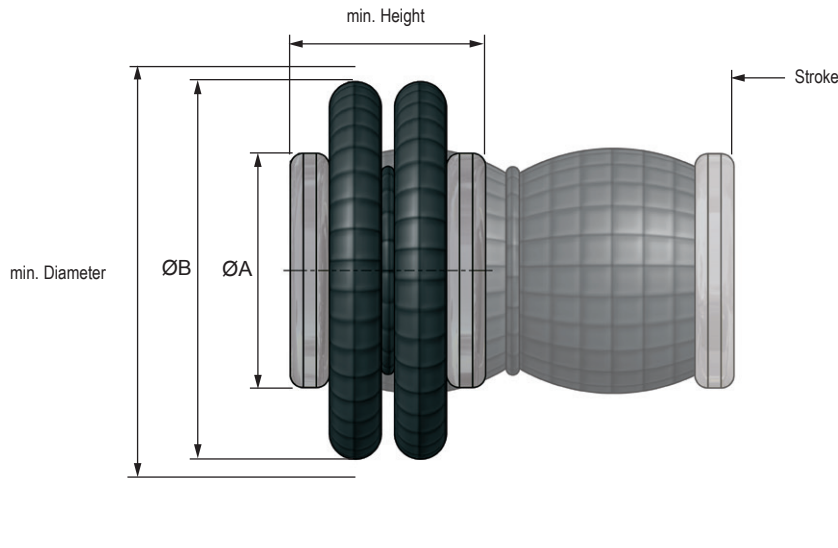
VIBRATION ISOLATION

	Force (kN) at recomm. design height (1000*lbs)			Natural frequency						Height	
	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	min. mm (inch)	opt. mm (inch)
WBE 100	1,1 (0.25)	2,3 (0.52)	3,4 (0.76)	3,5	3,3	3,3	210	198	198	70 (2.76)	90 (3.54)
WBE 150	1,5 (0.34)	3 (0.67)	4,6 (1.03)	3,9	3,8	3,7	234	228	222	65 (2.56)	75 (2.95)
WBE 200	1,6 (0.36)	3,7 (0.83)	5,7 (1.28)	3,1	2,9	2,8	186	174	168	70 (2.76)	90 (3.54)
WBE 250	2 (0.45)	4,3 (0.97)	6,5 (1.46)	2,8	2,7	2,7	168	162	162	100 (3.94)	110 (4.33)
WBE 300	2,5 (0.56)	5,4 (1.21)	8,5 (1.91)	3,0	2,7	2,6	180	162	156	90 (3.54)	110 (4.33)
WBE 310	3,2 (0.72)	6,6 (1.48)	9,9 (2.23)	2,7	2,7	2,6	162	162	156	100 (3.94)	115 (4.53)
WBE 320	2,8 (0.63)	5,8 (1.3)	8,9 (2)	2,6	2,5	2,4	156	150	144	125 (4.92)	140 (5.51)
WBE 400	3,7 (0.83)	7,5 (1.69)	11,9 (2.68)	2,8	2,6	2,6	168	156	150	90 (3.54)	110 (4.33)
WBE 410	3,7 (0.83)	7,5 (1.69)	11,9 (2.68)	2,8	2,6	2,6	168	156	150	90 (3.54)	110 (4.33)
WBE 500	7 (1.57)	14,2 (3.19)	21,8 (4.9)	2,6	2,4	2,3	156	144	138	100 (3.94)	130 (5.12)
WBE 510	2 (0.45)	14,2 (3.19)	21,8 (4.9)	2,8	2,4	2,3	156	144	138	100 (3.94)	130 (5.12)
WBE 530	7,7 (1.73)	15,5 (3.48)	23,4 (5.26)	2,6	2,3	2,3	156	144	138	120 (4.72)	140 (5.51)
WBE 600	10 (2.25)	20,1 (4.52)	31,6 (7.1)	2,5	2,5	2,4	150	144	144	110 (4.33)	145 (5.71)
WBE 700	12,4 (2.79)	24,9 (5.6)	37,9 (8.52)	2,3	2,1	2,0	138	132	126	120 (4.72)	150 (5.91)
WBE 730	19,1 (4.29)	38,3 (8.61)	57,5 (12.93)	2,3	2,2	2,1	138	132	126	115 (4.53)	130 (5.12)
WBE 750	27,8 (6.25)	55,7 (12.52)	83,9 (18.86)	2,2	2,2	2,1	132	132	126	111 (4.37)	131 (5.16)



Double-Convolution Air Springs

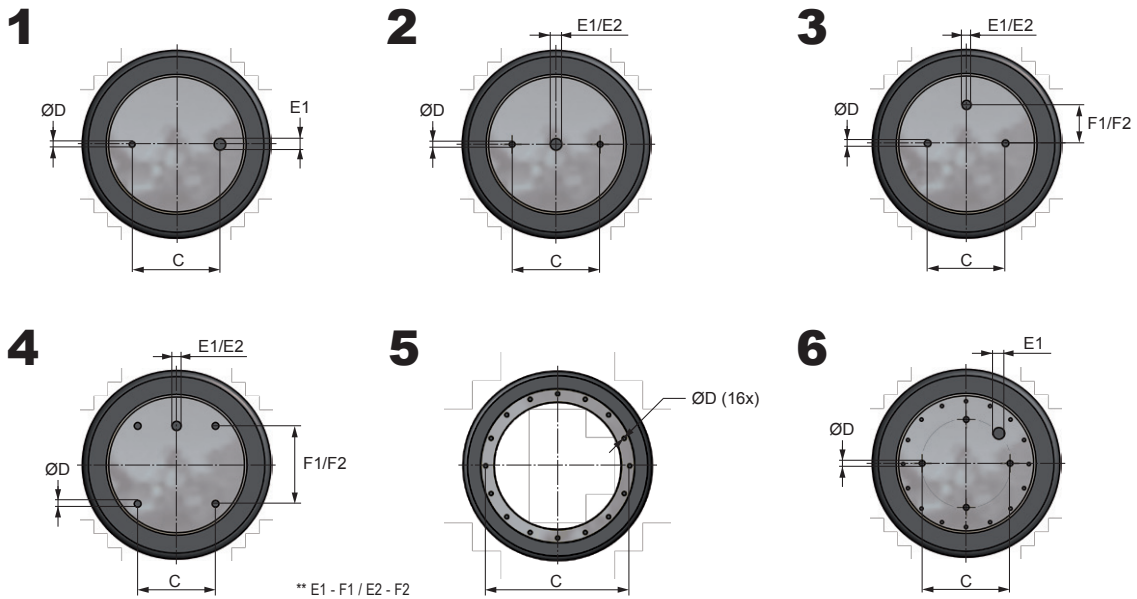
WBZ



DIMENSIONS

	Connection	Stroke	min. Diameter	min. Height	mm (inch)				F1**	F2**	E1**	E2**	Weight	Volume in litre	
					mm / inch (max.)	Ø A	Ø B	C						D	kg
WBZ 100	1	100 (3.94)	160 (6.3)	70 (2.76)	90 (3.54)	145 (5.71)	20 (0.79)	M8	-	-	G1/8	-	1,1 (2.43)	0,4	1,2
WBZ 200	2	128 (5.04)	180 (7.09)	75 (2.95)	108 (4.25)	165 (6.5)	44,5 (1.75)	M8	-	-	G1/4	-	1,5 (3.31)	0,6	1,9
WBZ 250	2	155 (6.1)	215 (8.46)	72 (2.83)	141 (5.55)	203 (7.99)	70 (2.76)	M8	-	-	G3/4	G1/4	2,1 (4.63)	1,1	3,4
WBZ 300	2	155 (6.1)	230 (9.06)	75 (2.95)	141 (5.55)	215 (8.46)	70 (2.76)	M8	-	-	G3/4	G1/4	2,4 (5.29)	1,1	3,8
WBZ 320	2	193 (7.6)	235 (9.25)	77 (3.03)	141 (5.55)	218 (8.58)	70 (2.76)	M8	-	-	G3/4	-	2,3 (5.07)	1,6	5,0
WBZ 400	3	200 (7.87)	265 (10.43)	75 (2.95)	161 (6.34)	250 (9.84)	89 (3.5)	M8	38,1 (1.5)	44,5 (1.75)	G3/4	G1/4	3 (6.62)	1,9	6,2
WBZ 430	3	248 (9.76)	275 (10.83)	77 (3.03)	161 (6.34)	260 (10.24)	89 (3.5)	M8	38,1 (1.5)	44,5 (1.75)	G3/4	G1/4	3,5 (7.72)	4,0	9,8
WBZ 500	3	230 (9.06)	340 (13.39)	75 (2.95)	228 (8.98)	325 (12.8)	157,5 (6.2)	M8	66 (2.6)	73 (2.87)	G1	G1/4	4,8 (10.58)	4,0	14,2
WBZ 520	3	283 (11.14)	355 (13.98)	77 (3.03)	228 (8.98)	340 (13.39)	157,5 (6.2)	M8	66 (2.6)	73 (2.87)	G1	G1/4	5,1 (11.25)	3,7	15,0
WBZ 600	4	233 (9.17)	400 (15.75)	77 (3.03)	287 (11.3)	385 (15.16)	158,8 (6.25)	M8	158,8 (6.25)	158,8 (6.25)	G1	G1/4	6,9 (15.21)	5,4	22,8
WBZ 630	4	283 (11.14)	415 (16.34)	77 (3.03)	287 (11.3)	400 (15.75)	158,8 (6.25)	M8	158,8 (6.25)	158,8 (6.25)	G1	G1/4	7,3 (16.1)	5,8	25,6
WBZ 640	4	313 (12.32)	420 (16.54)	77 (3.03)	287 (11.3)	405 (15.94)	158,8 (6.25)	M8	158,8 (6.25)	158,8 (6.25)	G1	G 1/4	7,7 (16.98)	7,0	30,3
WBZ 700	5	315 (12.4)	550 (21.65)	90 (3.54)	380 (14.96)	500 (19.69)	354 (13.94)	M8	-	-	-	-	14,4 (31.75)	12,0	48,0
WBZ 730	6	225 (8.86)	510 (20.08)	99 (3.9)	384 (15.12)	462 (18.19)	228,5 (9)	M12	-	-	G3/4	-	24,1 (53.14)	11,1	25,0
WBZ 750	6	246 (9.69)	575 (22.64)	96 (3.78)	451 (17.76)	525 (20.67)	305 (12.01)	M12	-	-	G3/4	-	30,5 (67.25)	15,8	39,8
WBZ 800	5	400 (15.75)	650 (25.59)	100 (3.94)	430 (16.93)	610 (24.02)	395 (15.55)	M16	-	-	-	-	16,7 (36.82)	22,0	92,0
WBZ 900	5	400 (15.75)	750 (29.53)	100 (3.94)	530 (20.87)	710 (27.95)	495 (19.49)	M16	-	-	-	-	18,2 (40.13)	32,0	127,0

Operating pressure	0 - 8 bar (0 - 116.03 psi)	Temperature	-40°C - +50°C (+70°F) -40°F - 122°F (+158°F)	Compressed air	oiled / oilfree
Lateral misalignment	max. 20 mm (0.79 in)	Tilt capability	max. 25°	Return force	120 - 300 N (26.98 - 67.44 lbs)



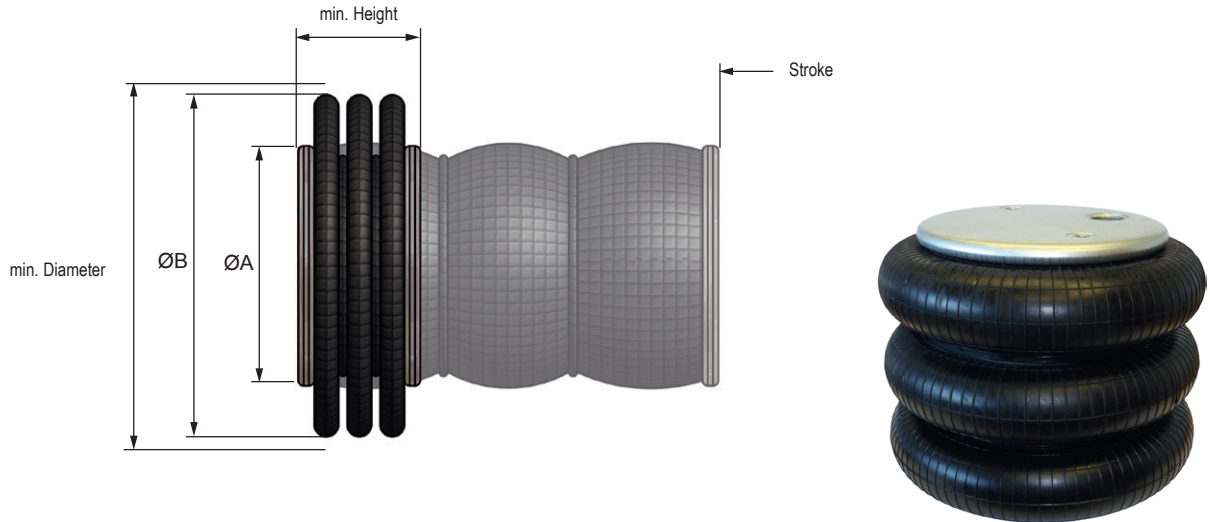
ACTUATION

	Heigth			Load kN (1000*lbs)			Heigth			Load kN (1000*lbs)			Heigth			Load kN (1000*lbs)		
	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)		
WBZ 100	80 (3.15)	1,8 (0.4)	3,5 (0.79)	5,4 (1.21)	120 (4.72)	1,4 (0.31)	2,7 (0.61)	4,1 (0.92)	140 (5.51)	1,1 (0.25)	2,2 (0.49)	3,3 (0.74)						
WBZ 200	80 (3.15)	2,8 (0.63)	5,7 (1.28)	8,5 (1.91)	140 (5.51)	1,9 (0.43)	3,9 (0.88)	5,8 (1.3)	180 (7.09)	1,1 (0.25)	2,3 (0.52)	3,5 (0.79)						
WBZ 250	80 (3.15)	4,1 (0.92)	8,1 (1.82)	12,2 (2.74)	140 (5.51)	3 (0.67)	6 (1.35)	9 (2.02)	180 (7.09)	2,1 (0.47)	4,1 (0.92)	6,3 (1.42)						
WBZ 300	80 (3.15)	4,5 (1.01)	9,1 (2.05)	13,7 (3.08)	160 (6.3)	3,3 (0.74)	6,5 (1.46)	9,9 (2.23)	200 (7.87)	2,3 (0.52)	4,8 (1.08)	7,3 (1.64)						
WBZ 320	80 (3.15)	4,9 (1.1)	9,7 (2.18)	14,7 (3.3)	160 (6.3)	3,9 (0.88)	7,8 (1.75)	11,9 (2.68)	200 (7.87)	3,2 (0.72)	6,2 (1.39)	9,6 (2.16)						
WBZ 400	80 (3.15)	6,9 (1.55)	13,4 (3.01)	19,7 (4.43)	170 (6.69)	4,8 (1.08)	9,4 (2.11)	14,2 (3.19)	230 (9.06)	2,7 (0.61)	5,6 (1.26)	8,8 (1.98)						
WBZ 430	110 (4.33)	6,2 (1.39)	12,3 (2.77)	18,7 (4.2)	170 (6.69)	5,5 (1.24)	11 (2.47)	16,6 (3.73)	290 (11.42)	2,7 (0.61)	5,6 (1.26)	9 (2.02)						
WBZ 500	100 (3.94)	11,2 (2.52)	22,1 (4.97)	34,1 (7.67)	160 (6.3)	9,7 (2.18)	19,4 (4.36)	29,5 (6.63)	240 (9.45)	6,7 (1.51)	13,3 (2.99)	20,6 (4.63)						
WBZ 520	100 (3.94)	12,2 (2.74)	24,4 (5.49)	36,3 (8.16)	220 (8.66)	9,7 (2.18)	19,4 (4.36)	29,4 (6.61)	320 (12.6)	4,4 (0.99)	10,8 (2.43)	17 (3.82)						
WBZ 600	100 (3.94)	16,2 (3.64)	32,3 (7.26)	48,7 (10.95)	200 (7.87)	13,1 (2.95)	26,4 (5.93)	39,8 (8.95)	240 (9.45)	11 (2.47)	22,1 (4.97)	33,5 (7.53)						
WBZ 630	100 (3.94)	18,6 (4.18)	36,8 (8.27)	52,4 (11.78)	220 (8.66)	14 (3.15)	28 (6.29)	42 (9.44)	300 (11.81)	8,6 (1.93)	17,7 (3.98)	27,7 (6.23)						
WBZ 640	120 (4.72)	17,5 (3.93)	34,8 (7.82)	52,9 (11.89)	240 (9.45)	14 (3.15)	28 (6.29)	43,3 (9.73)	320 (12.6)	10 (2.25)	20,4 (4.59)	32 (7.19)						
WBZ 700	90 (3.54)	30 (6.74)	60 (13.49)	90 (20.23)	210 (8.27)	24 (5.4)	50 (11.24)	75 (16.86)	330 (12.99)	15,6 (3.51)	31,3 (7.04)	47 (10.57)						
WBZ 730	100 (3.94)	25,1 (5.64)	50,1 (11.26)	75,2 (16.91)	160 (6.3)	23,1 (5.19)	46,4 (10.43)	70 (15.74)	220 (8.66)	19,6 (4.41)	39,4 (8.86)	59,9 (13.47)						
WBZ 750	120 (4.72)	35,3 (7.94)	70,5 (15.85)	105,7 (23.76)	210 (8.27)	30 (6.74)	60 (13.49)	91 (20.46)	270 (10.63)	23,4 (5.26)	47,7 (10.72)	73,4 (16.5)						
WBZ 800	150 (5.91)	39,6 (8.9)	79,3 (17.83)	119,3 (26.82)	350 (13.78)	29 (6.52)	58,6 (13.17)	88,5 (19.9)	450 (17.72)	18,7 (4.2)	37,8 (8.5)	58,8 (13.22)						
WBZ 900	100 (3.94)	60,7 (13.65)	123 (27.65)	186 (41.81)	300 (11.81)	49,3 (11.08)	102 (22.93)	155 (34.85)	500 (19.69)	26 (5.85)	53 (11.91)	84 (18.88)						

VIBRATION ISOLATION

	Force (kN) at recomm. design height (1000*lbs)			Natural frequency						Height	
	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	min. mm (inch)	opt. mm (inch)
WBZ 100	0,7 (0.16)	1,5 (0.34)	2,4 (0.54)	2,8	2,8	2,7	168	168	162	150 (5.91)	160 (6.3)
WBZ 200	1,3 (0.29)	2,5 (0.56)	3,8 (0.85)	2,5	2,5	2,4	150	144	144	160 (6.3)	175 (6.89)
WBZ 250	2,2 (0.49)	4,5 (1.01)	6,8 (1.53)	2,3	2,2	2,2	138	132	126	155 (6.1)	175 (6.89)
WBZ 300	2,4 (0.54)	5,2 (1.17)	8 (1.8)	2,2	2,0	2,0	132	120	120	175 (6.89)	190 (7.48)
WBZ 320	3,1 (0.7)	6,2 (1.39)	9,4 (2.11)	1,9	1,8	1,8	114	108	108	190 (7.48)	205 (8.07)
WBZ 400	3,4 (0.76)	7,1 (1.6)	10,7 (2.41)	2,0	1,9	1,9	120	114	114	195 (7.68)	210 (8.27)
WBZ 430	4 (0.9)	8,1 (1.82)	12,3 (2.77)	1,8	1,8	1,7	108	108	102	230 (9.06)	254 (10)
WBZ 500	6,7 (1.51)	13,3 (2.99)	20,6 (4.63)	2,1	1,9	1,8	126	108	108	220 (8.66)	240 (9.45)
WBZ 600	10,1 (2.27)	20,7 (4.65)	31,5 (7.08)	1,9	1,8	1,8	114	108	108	225 (8.86)	250 (9.84)
WBZ 630	11,5 (2.59)	23,4 (5.26)	35,9 (8.07)	1,6	1,6	1,5	96	96	90	245 (9.65)	260 (10.24)
WBZ 640	12,5 (2.81)	25,1 (5.64)	38,2 (8.59)	1,5	1,5	1,4	90	90	84	265 (10.43)	285 (11.22)
WBZ 730	18 (4.05)	36,3 (8.16)	45,7 (10.27)	1,7	1,6	1,6	102	96	96	220 (8.66)	240 (9.45)
WBZ 750	26,5 (5.96)	53,6 (12.05)	80,9 (18.19)	1,6	1,6	1,5	96	96	90	226 (8.9)	246 (9.69)

WBD

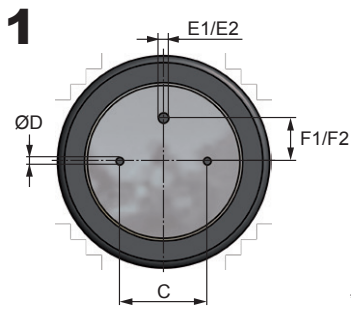


DIMENSIONS

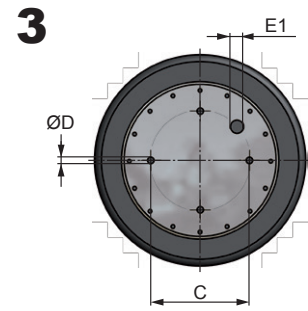
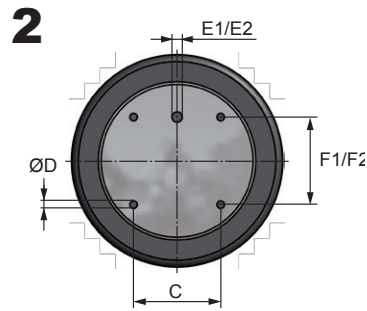
	Connection	Stroke mm / inch (max.)	min. Diameter	min. Height	mm (inch)								F1**	F2**	E1**	E2**	Weight kg (lbs)	Volume in litre	
					ø A	ø B	C	D	Hmin	Hmax									
WBD 500	1	320 (12.6)	345 (13.58)	110 (4.33)	228 (8.98)	325 (12.8)	157.5 (6.2)	M8	66 (2.6)	73 (2.87)	G 1	G 1/4	5.9 (13.01)	5,0	26,0				
WBD 600	2	325 (12.8)	410 (16.14)	110 (4.33)	287 (11.3)	384 (15.12)	158.8 (6.25)	M8	158,8 (6.25)	158,8 (6.25)	G 1	G 1/4	8 (17.64)	5,5	33,1				
WBD 700	2	395 (15.55)	430 (16.93)	115 (4.53)	287 (11.3)	405 (15.94)	158.8 (6.25)	M8	158,8 (6.25)	158,8 (6.25)	G 1	G 1/4	9,3 (20.51)	9,6	37,3				
WBD 730	3	336 (13.23)	510 (20.08)	126 (4.96)	384 (15.12)	462 (18.19)	228,5 (9)	M12	-	-	G 3/4	-	25,5 (56.23)	15,9	39,0				
WBD 750	3	356 (14.02)	570 (22.44)	126 (4.96)	451 (17.76)	521 (20.51)	305 (12.01)	M12	-	-	G 3/4	-	33 (72.77)	24,4	54,5				



Operating pressure	0 - 8 bar (0 - 116.03 psi)	Temperature	-40°C - +50°C (+70°F) -40°F - 122°F (+158°F)	Compressed air	oiled / oilfree
Lateral misalignment	max. 30 mm (1.18 in)	Tilt capability	max. 30°	Return force	400 - 500 N (89.92 - 122.41 lbs)



** E1 - F1 / E2 - F2

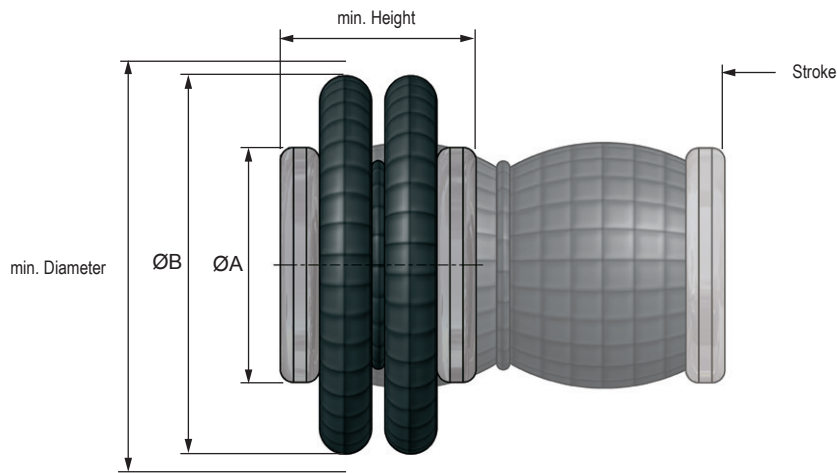


ACTUATION

	Heigth			Load (kN)			Heigth			Load (kN)		
	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)
WBD 500	140 (5.51)	11,3 (2.54)	22,4 (5.04)	33,6 (7.55)	260 (10.24)	9,1 (2.05)	18,2 (4.09)	27,6 (6.2)	380 (14.96)	5,9 (1.33)	11,9 (2.68)	18,4 (4.14)
WBD 600	160 (6.3)	16,3 (3.66)	32,3 (7.26)	49,1 (11.04)	280 (11.02)	13,3 (2.99)	26,7 (6)	40,8 (9.17)	360 (14.17)	10 (2.25)	20,8 (4.68)	32 (7.19)
WBD 700	140 (5.51)	18,2 (4.09)	36,3 (8.16)	54,5 (12.25)	300 (11.81)	14,2 (3.19)	28,4 (6.38)	43,4 (9.76)	380 (14.96)	11,8 (2.65)	23,8 (5.35)	36,4 (8.18)
WBD 730	160 (6.3)	24,7 (5.55)	49,2 (11.06)	73,6 (16.55)	280 (11.02)	21 (4.72)	41,8 (9.4)	62,9 (14.14)	400 (15.75)	13,2 (2.97)	26,6 (5.98)	40,6 (9.13)
WBD 750	190 (7.48)	34,8 (7.82)	69,6 (15.65)	104,6 (23.52)	270 (10.63)	31,5 (7.08)	63 (14.16)	95,3 (21.42)	390 (15.35)	22,3 (5.01)	45,4 (10.21)	70,1 (15.76)



WBE / WBZ / WBD

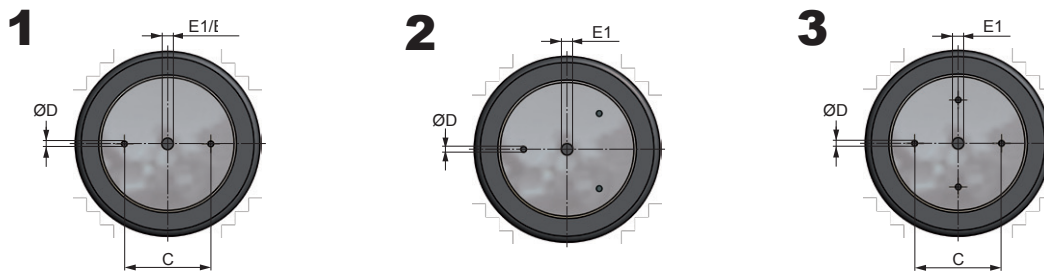


DIMENSIONS

	Connection	Stroke	min. Diameter	min. Height	mm (inch)			D	E1	Weight	Volume in litre	
					mm / inch (max.)	mm (inch)	mm (inch)				mm (inch)	kg
WBE 70	1	20 (0.79)	95 (3.74)	50 (1.97)	78 (3.07)	95 (3.74)	36 (1.42)	M6	G 1/4	0,5 (1.1)	0,1	0,2
WBE 140	2	40 (1.57)	140 (5.51)	45 (1.77)	110 (4.33)	125 (4.92)	93 (3.66)	M6	G 3/8	0,8 (1.76)	0,2	0,5
WBE 210	3	55 (2.17)	190 (7.48)	55 (2.17)	152 (5.98)	175 (6.89)	127 (5)	M8	G 1/2	1,65 (3.64)	0,4	1,0
WBZ 70	1	45 (1.77)	95 (3.74)	65 (2.56)	78 (3.07)	80 (3.15)	36 (1.42)	M6	G 1/4	0,7 (1.54)	0,3	0,6
WBZ 140	2	85 (3.35)	140 (5.51)	65 (2.56)	110 (4.33)	125 (4.92)	93 (3.66)	M6	G 3/8	0,9 (1.98)	0,4	0,8
WBZ 210	3	125 (4.92)	190 (7.48)	75 (2.95)	152 (5.98)	175 (6.89)	127 (5)	M8	G 1/2	2 (4.41)	0,6	2,3
WBD 70	1	60 (2.36)	95 (3.74)	80 (3.15)	78 (3.07)	80 (3.15)	36 (1.42)	M6	G 1/4	1 (2.21)	0,4	0,8
WBD 140	2	100 (3.94)	140 (5.51)	100 (3.94)	110 (4.33)	125 (4.92)	93 (3.66)	M6	G 3/8	1,2 (2.65)	0,6	1,2
WBD 210	3	168 (6.61)	190 (7.48)	102 (4.02)	152 (5.98)	175 (6.89)	127 (5)	M8	G 1/2	2,5 (5.51)	0,8	2,7



Operating pressure	0 - 8 bar (0 - 116.03 psi)	Temperature	-40°C - +50°C (+70°F) -40°F - 122°F (+158°F)	Compressed air	oiled / oilfree
Lateral misalignment	WBE: max. 10 mm (0.39 in) WBZ: max. 20 mm (0.79 in) WBD: max. 30 mm (1.18 in)	Tilt capability	WBE: max. 20° WBZ: max. 25° WBD: max. 30°	Return force	WBE: 120 - 300 N (26.98 - 67.44 lbs) WBZ: 120 - 300 N (26.98 - 67.44 lbs) WBD: 400 - 500 N (89.92 - 112.41 lbs)



ACTUATION

	Heighth			Load (kN)			Heighth			Load (kN)		
	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)
WBE 70	55 (2.17)	0,7 (0.16)	1,4 (0.31)	2,1 (0.47)	65 (2.56)	0,5 (0.11)	0,9 (0.2)	1,4 (0.31)	70 (2.76)	0,3 (0.07)	0,7 (0.16)	1,1 (0.25)
WBE 140	50 (1.97)	1,8 (0.4)	3,6 (0.81)	5,5 (1.24)	70 (2.76)	1,1 (0.25)	2,2 (0.49)	3,5 (0.79)	80 (3.15)	0,8 (0.18)	1,6 (0.36)	2,6 (0.58)
WBE 210	60 (2.36)	3,6 (0.81)	7,2 (1.62)	10,9 (2.45)	80 (3.15)	2,5 (0.56)	4,9 (1.1)	7,8 (1.75)	100 (3.94)	1,6 (0.36)	3,2 (0.72)	5,2 (1.17)
WBZ 70	70 (2.76)	1,5 (0.34)	3 (0.67)	4,5 (1.01)	80 (3.15)	1,1 (0.25)	2,2 (0.49)	3,3 (0.74)	100 (3.94)	0,5 (0.11)	1 (0.22)	1,5 (0.34)
WBZ 140	70 (2.76)	2 (0.45)	3,6 (0.81)	5,3 (1.19)	100 (3.94)	1,3 (0.29)	2,4 (0.54)	3,7 (0.83)	140 (5.51)	0,6 (0.13)	1,3 (0.29)	2 (0.45)
WBZ 210	100 (3.94)	3,2 (0.72)	6,3 (1.42)	9,3 (2.09)	140 (5.51)	2,3 (0.52)	4,5 (1.01)	6,8 (1.53)	180 (7.09)	1,6 (0.36)	3,1 (0.7)	4,8 (1.08)
WBD 70	90 (3.54)	0,7 (0.16)	1,23 (0.28)	1,84 (0.41)	110 (4.33)	0,48 (0.11)	0,96 (0.22)	1,46 (0.33)	130 (5.12)	0,35 (0.08)	0,6 (0.13)	0,94 (0.21)
WBD 140	110 (4.33)	1,6 (0.36)	3 (0.67)	5 (1.12)	150 (5.91)	1,2 (0.27)	2,2 (0.49)	3,3 (0.74)	180 (7.09)	0,8 (0.18)	1,6 (0.36)	2,6 (0.58)
WBD 210	125 (4.92)	3,2 (0.72)	6,2 (1.39)	9,1 (2.05)	175 (6.89)	2,3 (0.52)	4,7 (1.06)	7 (1.57)	252 (9.92)	1,7 (0.38)	3,4 (0.76)	5,3 (1.19)

VIBRATION ISOLATION

	Force (kN) at recomm. design height (1000*lbs)						Natural frequency			Height	
	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	min. mm (inch)	opt. mm (inch)
							HZ			U/min	
WBE 70	0,6 (0.13)	1,2 (0.27)	1,8 (0.4)	4,3	4,2	4,1	258	252	246	55 (2.17)	60 (2.36)
WBE 140	1,1 (0.25)	2,3 (0.52)	3,5 (0.79)	3,8	3,6	3,5	228	216	210	65 (2.56)	70 (2.76)
WBE 210	2 (0.45)	4 (0.9)	6,1 (1.37)	3,3	3,2	3,1	198	192	186	75 (2.95)	90 (3.54)
WBZ 70	0,8 (0.18)	1,6 (0.36)	2,5 (0.56)	3,8	3,6	3,6	228	216	216	75 (2.95)	90 (3.54)
WBZ 140	0,8 (0.18)	1,6 (0.36)	2,5 (0.56)	3,0	2,9	2,7	180	174	168	110 (4.33)	130 (5.12)
WBZ 210	2 (0.45)	4 (0.9)	6 (1.35)	2,3	2,2	2,1	138	132	126	150 (5.91)	160 (6.3)

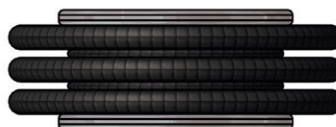
WBE



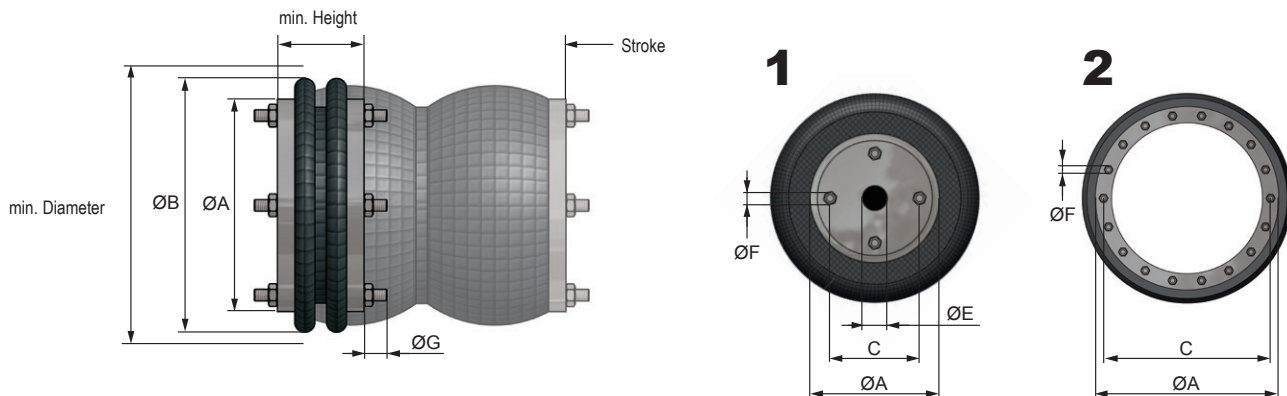
WBZ



WBD



WBE-G / WBZ-G / WBD-G



DIMENSIONS

Connection	Stroke	min. Diameter	min. Height	$\varnothing A$	$\varnothing B$	C	F	G	E	Weight	Volume in litre		
											Hmin	Hmax	
	mm / inch (max.)									kg (lbs)			
WBE-G210	1	55 (2.17)	180 (7.09)	50 (1.97)	154 (6.06)	168 (6.61)	127 (5)	4xM10	27,3 (1.07)	G 1/2	1,9 (4.19)	0,2	0,6
WBE-G350	1	80 (3.15)	245 (9.65)	50 (1.97)	184 (7.24)	230 (9.06)	155,5 (6.12)	4xM10	29,5 (1.16)	G 1/2	3,4 (7.5)	0,5	7,1
WBE-G450	1	100 (3.94)	295 (11.61)	50 (1.97)	210 (8.27)	280 (11.02)	181 (7.13)	4xM10	27,3 (1.07)	G 1/2	3,8 (8.38)	0,9	7,2
WBE-G550	1	100 (3.94)	345 (13.58)	50 (1.97)	260 (10.24)	330 (12.99)	231,8 (9.13)	4xM10	27,3 (1.07)	G 1/2	4,8 (10.58)	2,7	8,5
WBE-G600	1	135 (5.31)	410 (16.14)	50 (1.97)	311 (12.24)	395 (15.55)	282,6 (11.13)	4xM10	27,3 (1.07)	G 1/2	6,9 (15.21)	3,7	16,0
WBE-G650	2	135 (5.31)	480 (18.9)	51 (2.01)	384 (15.12)	442 (17.4)	350 (13.78)	18xM10	28,5 (1.12)	-	5 (11.03)	3,8	16,6
WBE-G750	2	115 (4.53)	570 (22.44)	51 (2.01)	451 (17.76)	530 (20.87)	419 (16.5)	24xM10	28,5 (1.12)	-	7,3 (16.1)	6,4	32,2
WBE-G850	2	126 (4.96)	620 (24.41)	51 (2.01)	517 (20.35)	580 (22.83)	482 (18.98)	24xM10	28,5 (1.12)	-	8,7 (19.18)	6,9	34,0
WBE-G950	2	164 (6.46)	760 (29.92)	51 (2.01)	638 (25.12)	715 (28.15)	596 (23.46)	32xM10	28,5 (1.12)	-	11,1 (24.48)	14,1	53,6
WBE-G1050	2	150 (5.91)	1000 (39.37)	64 (2.52)	890 (35.04)	950 (37.4)	830 (32.68)	40xM10	23,5 (0.93)	-	22 (48.51)	32,3	115,0
WBZ-G210	1	125 (4.92)	190 (7.48)	70 (2.76)	153,5 (6.04)	175 (6.89)	127 (5)	4xM10	29 (1.14)	G 1/2	2 (4.41)	0,6	4,8
WBZ-G350	1	175 (6.89)	245 (9.65)	75 (2.95)	184 (7.24)	230 (9.06)	155,5 (6.12)	4xM10	29 (1.14)	G 1/2	3,8 (8.38)	1,3	4,6
WBZ-G450	1	225 (8.86)	300 (11.81)	75 (2.95)	210 (8.27)	270 (10.63)	181 (7.13)	4xM10	29 (1.14)	G 1/2	4,8 (10.58)	1,8	8,2
WBZ-G550	1	225 (8.86)	350 (13.78)	75 (2.95)	260 (10.24)	330 (12.99)	232 (9.13)	4xM10	29 (1.14)	G 1/2	6,5 (14.33)	4,1	14,4
WBZ-G600	1	260 (10.24)	420 (16.54)	80 (3.15)	311 (12.24)	395 (15.55)	282,6 (11.13)	4xM10	29 (1.14)	G 1/2	9,3 (20.51)	7,7	26,5
WBZ-G650	2	226 (8.9)	490 (19.29)	84 (3.31)	384 (15.12)	444 (17.48)	350 (13.78)	18xM10	28,5 (1.12)	-	8,6 (18.96)	8,7	31,4
WBZ-G750	2	245 (9.65)	570 (22.44)	84 (3.31)	451 (17.76)	518 (20.39)	419 (16.5)	24xM10	28,5 (1.12)	-	10,2 (22.49)	11,0	45,2
WBZ-G850	2	250 (9.84)	620 (24.41)	84 (3.31)	517 (20.35)	577 (22.72)	482 (18.98)	24xM10	28,5 (1.12)	-	12 (26.46)	13,5	59,7
WBZ-G900	2	230 (9.06)	710 (27.95)	84 (3.31)	600 (23.62)	660 (25.98)	558 (21.97)	24xM10	28,5 (1.12)	-	14,1 (31.09)	20,9	78,5
WBZ-G950	2	251 (9.88)	760 (29.92)	84 (3.31)	638 (25.12)	709 (27.91)	596 (23.46)	32xM10	28,5 (1.12)	-	15,4 (33.96)	19,6	104,6
WBZ-G1050	2	283 (11.14)	1000 (39.37)	107 (4.21)	890 (35.04)	950 (37.4)	830 (32.68)	40xM10	23,5 (0.93)	-	32,9 (72.54)	17,8	222,6
WBD-G210	1	183 (7.2)	180 (7.09)	95 (3.74)	154 (6.06)	168 (6.61)	127 (5)	4xM10	27,3 (1.07)	G 1/2	2,5 (5.51)	1,8	8,2
WBD-G350	1	250 (9.84)	230 (9.06)	100 (3.94)	184 (7.24)	230 (9.06)	155,6 (6.13)	4xM10	27,3 (1.07)	G 1/2	4,5 (9.92)	2,2	9,0
WBD-G450	1	330 (12.99)	300 (11.81)	100 (3.94)	210 (8.27)	270 (10.63)	181 (7.13)	4xM10	29 (1.14)	G 1/2	5,6 (12.35)	2,6	11,8
WBD-G550	1	330 (12.99)	350 (13.78)	100 (3.94)	260 (10.24)	330 (12.99)	232 (9.13)	4xM10	29 (1.14)	G 1/2	8,1 (17.86)	4,3	19,5
WBD-G590	1	380 (14.96)	420 (16.54)	100 (3.94)	311 (12.24)	395 (15.55)	282,6 (11.13)	4xM10	29 (1.14)	G 1/2	11,5 (25.36)	8,0	32,4
WBD-G600	1	430 (16.93)	480 (18.9)	120 (4.72)	311 (12.24)	430 (16.93)	282,6 (11.13)	4xM10	29 (1.14)	G 1/2	13 (28.67)	19,0	47,3
WBD-G650	2	336 (13.23)	510 (20.08)	114 (4.49)	384 (15.12)	462 (18.19)	350 (13.78)	18xM10	28,5 (1.12)	-	9,3 (20.51)	16,3	43,3
WBD-G750	2	355 (13.98)	570 (22.44)	114 (4.49)	451 (17.76)	521 (20.51)	419 (16.5)	24xM10	28,5 (1.12)	-	12,5 (27.56)	13,9	63,1
WBD-G850	2	355 (13.98)	630 (24.8)	114 (4.49)	517 (20.35)	580 (22.83)	482 (18.98)	24xM10	28,5 (1.12)	-	14,5 (31.97)	19,0	86,0
WBD-G950	2	455 (17.91)	770 (30.31)	115 (4.53)	638 (25.12)	720 (28.35)	596 (23.46)	32xM10	28,5 (1.12)	-	17 (37.49)	35,0	157,0
WBD-G1050	2	440 (17.32)	1000 (39.37)	140 (5.51)	890 (35.04)	950 (37.4)	830 (32.68)	40xM10	23,5 (0.93)	-	44 (97.02)	77,2	307,2

Operating pressure	0 - 8 bar (0 - 116.03 psi)	Temperature	-40°C - +50°C (+70°C) -40°F - 122°F (+158°F)	Compressed air	oiled / oilfree
Lateral misalignment	max. 10 - 30 mm (0.39 - 1.18 in)	Tilt capability	max. 10° - 30°	Return force	- 1800 N (- 404.66 lbs)

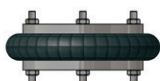
ACTUATION

	Heigth			Load (kN)			Heigth			Load (kN)			Heigth			Load (kN)		
	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)		
WBE-G210	27,3 (1.07)	3,6 (0.81)	7,2 (1.82)	10,8 (2.43)	90 (3.54)	1,8 (0.4)	3,6 (0.81)	5,4 (1.21)	100 (3.94)	1,2 (0.27)	2,4 (0.54)	3,6 (0.81)						
WBE-G350	29,5 (1.16)	8,6 (1.93)	11,6 (2.61)	17,6 (3.96)	100 (3.94)	5,5 (1.24)	7,2 (1.62)	14,1 (3.17)	120 (4.72)	3,4 (0.76)	4,9 (1.1)	7,8 (1.75)						
WBE-G450	27,3 (1.07)	9 (2.02)	18 (4.05)	27 (6.07)	100 (3.94)	7 (1.57)	14 (3.15)	21 (4.72)	140 (5.51)	3 (0.67)	6 (1.35)	9 (2.02)						
WBE-G550	27,3 (1.07)	13 (2.92)	26 (5.85)	39 (8.77)	100 (3.94)	10 (2.25)	20 (4.5)	30 (6.74)	140 (5.51)	4,4 (0.99)	8,8 (1.98)	13,2 (2.97)						
WBE-G600	27,3 (1.07)	17 (3.82)	34 (7.64)	51 (11.47)	110 (4.33)	9 (2.02)	18 (4.05)	27 (6.07)	160 (6.3)	9,6 (2.16)	19,2 (4.32)	28,8 (6.47)						
WBE-G650	28,5 (1.12)	25 (5.62)	49,6 (11.15)	75,3 (16.93)	110 (4.33)	20 (4.5)	41,2 (9.26)	62,3 (14.01)	140 (5.51)	16 (3.6)	32,7 (7.35)	49,7 (11.17)						
WBE-G750	28,5 (1.12)	34,5 (7.76)	69 (15.51)	103,5 (23.27)	110 (4.33)	28,6 (6.43)	57,6 (12.95)	86,7 (19.49)	140 (5.51)	22,6 (5.08)	45,8 (10.3)	69,5 (15.62)						
WBE-G850	28,5 (1.12)	45,2 (10.16)	90,2 (20.28)	135,5 (30.46)	100 (3.94)	40 (8.99)	80,2 (18.03)	121 (27.2)	140 (5.51)	32,1 (7.22)	64,4 (14.48)	98 (22.03)						
WBE-G950	28,5 (1.12)	80 (17.98)	156,9 (35.27)	225,6 (50.72)	120 (4.72)	70 (15.74)	135 (30.35)	196,3 (44.13)	180 (7.09)	47 (10.57)	91,9 (20.66)	189,6 (42.62)						
WBE-G1050	23,5 (0.93)	127 (28.55)	254,9 (57.3)	380,9 (85.63)	120 (4.72)	118 (26.53)	231,2 (51.98)	349 (78.46)	180 (7.09)	89 (20.01)	180,1 (40.49)	274,4 (61.69)						
WBZ-G210	29 (1.14)	3,2 (0.72)	6,3 (1.42)	9,3 (2.09)	135 (5.31)	2,3 (0.52)	4,5 (1.01)	6,8 (1.53)	175 (6.89)	1,5 (0.34)	3,1 (0.7)	4,8 (1.08)						
WBZ-G350	29 (1.14)	8,1 (1.82)	11,6 (2.61)	16,6 (3.73)	150 (5.91)	6 (1.35)	8 (1.8)	17,4 (3.91)	200 (7.87)	4 (0.9)	5,3 (1.19)	8,2 (1.84)						
WBZ-G450	29 (1.14)	12,2 (2.74)	17,2 (3.87)	26 (5.85)	200 (7.87)	8,2 (1.84)	10,8 (2.43)	16,6 (3.73)	250 (9.84)	5,6 (1.26)	7,8 (1.75)	12,2 (2.74)						
WBZ-G550	29 (1.14)	18 (4.05)	25,9 (5.82)	38,3 (8.61)	200 (7.87)	11,8 (2.65)	19,5 (4.38)	26,7 (6)	250 (9.84)	7,8 (1.75)	12,8 (2.88)	19,9 (4.47)						
WBZ-G600	60 (2.36)	20,4 (4.59)	39,9 (8.97)	59,6 (13.4)	200 (7.87)	14,3 (3.21)	28,9 (6.5)	44,4 (9.98)	280 (11.02)	9,1 (2.05)	18,9 (4.25)	-						
WBZ-G650	60 (2.36)	25,8 (5.8)	52,2 (11.74)	77,8 (17.49)	160 (6.3)	22,6 (5.08)	46 (10.34)	69,5 (15.62)	220 (8.66)	19,1 (4.29)	38,1 (8.57)	58,1 (13.06)						
WBZ-G750	60 (2.36)	34,3 (7.71)	68,4 (15.38)	102,8 (23.11)	180 (7.09)	30,5 (6.86)	61,2 (13.76)	91,8 (20.64)	270 (10.63)	22,7 (5.1)	45,9 (10.32)	69,2 (15.56)						
WBZ-G850	60 (2.36)	44,2 (9.94)	88,1 (19.81)	133,5 (30.01)	200 (7.87)	38 (8.54)	76,5 (17.2)	115,7 (26.01)	280 (11.02)	28,1 (6.32)	57,8 (12.99)	86,4 (19.42)						
WBZ-G900	60 (2.36)	57,4 (12.9)	114,7 (25.79)	172,4 (38.76)	200 (7.87)	50 (11.24)	100,3 (22.55)	151,3 (34.01)	260 (10.24)	41,8 (9.4)	83,8 (18.84)	127,5 (28.66)						
WBZ-G950	70 (2.76)	71,3 (16.03)	137,9 (31)	205,2 (46.13)	200 (7.87)	65,6 (14.75)	128,7 (28.93)	189,2 (42.53)	280 (11.02)	54 (12.14)	105 (23.61)	155,5 (34.96)						
WBZ-G1050	70 (2.76)	127,3 (28.62)	255 (57.33)	383 (86.1)	200 (7.87)	117,3 (26.37)	233,5 (52.49)	353,9 (79.56)	280 (11.02)	103,2 (23.2)	205,6 (46.22)	308,1 (69.26)						
WBD-G210	60 (2.36)	3,6 (0.81)	7,2 (1.62)	10,8 (2.43)	180 (7.09)	2 (0.45)	4 (0.9)	6 (1.35)	250 (9.84)	1,2 (0.27)	2,4 (0.54)	3,6 (0.81)						
WBD-G350	60 (2.36)	8,5 (1.91)	12,7 (2.86)	15 (3.37)	220 (8.66)	3,5 (0.79)	9 (2.02)	12 (2.7)	330 (12.99)	2,5 (0.56)	5 (1.12)	7,5 (1.69)						
WBD-G450	80 (3.15)	11,8 (2.65)	15,8 (3.55)	23,7 (5.33)	250 (9.84)	8,5 (1.91)	11,2 (2.52)	17 (3.82)	350 (13.78)	5,4 (1.21)	7,9 (1.78)	11,1 (2.5)						
WBD-G550	95 (3.74)	18,5 (4.16)	23,1 (5.19)	37,8 (8.5)	250 (9.84)	14,2 (3.19)	19,3 (4.34)	29,4 (6.61)	350 (13.78)	9,3 (2.09)	12,2 (2.74)	20,5 (4.61)						
WBD-G590	100 (3.94)	20,5 (4.61)	40,6 (9.13)	60,2 (13.53)	300 (11.81)	13 (2.92)	26 (5.85)	39,2 (8.81)	400 (15.75)	9,2 (2.07)	18,6 (4.18)	28,4 (6.38)						
WBD-G600	100 (3.94)	20,8 (4.68)	41,6 (9.35)	62,5 (14.05)	300 (11.81)	16,2 (3.64)	32,4 (7.28)	48,5 (10.9)	450 (17.72)	10,8 (2.43)	21,6 (4.86)	33 (7.42)						
WBD-G650	100 (3.94)	25,6 (5.76)	51,3 (11.53)	76,2 (17.13)	280 (11.02)	20,9 (4.7)	42 (9.44)	63,3 (14.23)	404 (15.91)	12,8 (2.88)	27,3 (6.14)	42,1 (9.46)						
WBD-G750	80 (3.15)	36,3 (8.16)	72,1 (16.21)	107,4 (24.14)	270 (10.63)	31,5 (7.08)	62,2 (13.98)	93,5 (21.02)	390 (15.35)	23,7 (5.33)	45,5 (10.23)	68,5 (15.4)						
WBD-G850	100 (3.94)	45 (10.12)	90,4 (20.32)	135 (30.35)	270 (10.63)	39,9 (8.97)	78,7 (17.69)	118 (26.53)	390 (15.35)	30,2 (6.79)	61,8 (13.89)	93,3 (20.97)						
WBD-G950	120 (4.72)	73,3 (16.48)	142 (31.92)	210 (47.21)	320 (12.6)	63,3 (14.23)	123 (27.65)	183 (41.14)	480 (18.9)	43,7 (9.82)	85 (19.11)	126 (28.33)						
WBD-G1050	120 (4.72)	128,8 (28.96)	257,7 (57.93)	382,9 (86.08)	120 (4.72)	113,3 (25.47)	227,1 (51.05)	342,5 (77)	120 (4.72)	98,7 (22.19)	198,4 (44.6)	302,2 (67.94)						

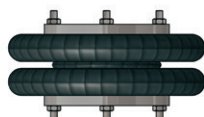
VIBRATION ISOLATION

	Force (kN) at recomm. design height (1000*lbs)			Natural frequency						Height	
	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	min. mm (inch)	opt. mm (inch)
WBE-G210	2,5 (0.56)	4,9 (1.1)	7,4 (1.66)	4,2	3,9	3,9	252	234	234	70 (2.76)	80 (3.15)
WBE-G350	5,5 (1.24)	9,2 (2.07)	11,1 (2.5)	3,0	3,0	7,9	180	168	168	75 (2.95)	100 (3.94)
WBE-G450	7 (1.57)	14 (3.15)	21 (4.72)	2,9	2,8	2,8	174	168	168	75 (2.95)	95 (3.74)
WBE-G550	10 (2.25)	20 (4.5)	30 (6.74)	2,9	2,8	2,8	174	168	168	75 (2.95)	95 (3.74)
WBE-G600	15 (3.37)	30 (6.74)	45 (10.12)	2,6	2,5	2,5	156	150	150	85 (3.35)	105 (4.13)
WBE-G650	19,1 (4.29)	38,8 (8.72)	58,7 (13.2)	2,3	2,2	2,2	138	132	132	110 (4.33)	125 (4.92)
WBE-G750	26 (5.85)	57 (12.81)	79 (17.76)	2,3	2,2	2,2	138	132	132	105 (4.13)	125 (4.92)
WBE-G850	32,1 (7.22)	70,6 (15.87)	110 (24.73)	2,2	2,2	2,1	132	126	126	110 (4.33)	125 (4.92)
WBE-G950	59 (13.26)	116,9 (26.28)	173,2 (38.94)	2,0	2,0	1,9	120	114	108	130 (5.12)	150 (5.91)
WBE-G1050	108 (24.28)	217 (48.78)	328 (73.74)	2,0	2,0	1,9	120	114	114	120 (4.72)	140 (5.51)
WBZ-G210	3 (0.67)	4 (0.9)	6 (1.35)	2,3	2,2	2,1	138	132	126	145 (5.71)	155 (6.1)
WBZ-G350	4 (0.9)	5,3 (1.19)	8,2 (1.84)	2,1	2,2	2,1	126	120	10	180 (7.09)	200 (7.87)
WBZ-G450	7,1 (1.6)	9,5 (2.14)	14,5 (3.26)	1,9	1,8	1,7	114	108	102	200 (7.87)	220 (8.66)
WBZ-G550	10,3 (2.32)	16,3 (3.66)	24,5 (5.51)	2,0	1,8	1,7	120	108	108	200 (7.87)	220 (8.66)
WBZ-G600	11,5 (2.59)	23,3 (5.24)	35,3 (7.94)	1,7	1,7	1,6	102	102	96	230 (9.06)	250 (9.84)
WBZ-G650	18,3 (4.11)	35,2 (7.91)	54,6 (12.27)	1,7	1,7	1,6	102	96	96	220 (8.66)	240 (9.45)
WBZ-G750	26 (5.85)	51,4 (11.56)	77,8 (17.49)	1,6	1,6	1,5	96	90	90	220 (8.66)	240 (9.45)
WBZ-G850	34,4 (7.73)	69,4 (15.6)	102,8 (23.11)	1,6	1,6	1,5	96	90	90	220 (8.66)	240 (9.45)
WBZ-G900	46,1 (10.36)	90,5 (20.35)	137,6 (30.93)	1,6	1,6	1,5	96	90	90	220 (8.66)	240 (9.45)
WBZ-G950	56,8 (12.77)	113,3 (25.47)	166 (37.32)	1,5	1,5	1,5	90	90	84	245 (9.65)	265 (10.43)
WBZ-G1050	104,9 (23.58)	204,9 (46.06)	312,3 (70.21)	1,4	1,4	1,3	84	78	78	260 (10.24)	280 (11.02)

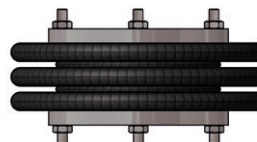
WBE-G



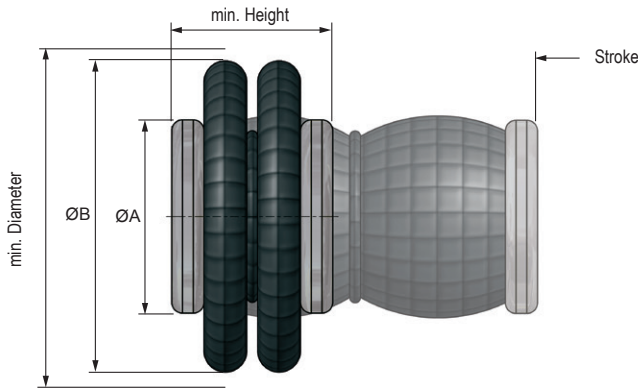
WBZ-G



WBD-G



WBE-VA / WBZ-VA / WBD-VA



- Highly resistant to media, e.g. to acids, chemicals and cleaning products
- Corrosion resistant
- Wear-resistant (even at high temperatures and high mechanical stress)

Applications:

- Offshore
- Pharmaceutical and processing industry
- Chemical industry
- Cellulose and paper industry
- Food industry

DIMENSIONS

	Connection	Stroke mm / inch (max.)	min. Diameter	min. Height	mm (inch)						E1	Weight kg	Volume in litre	
					ø A	ø B	C	D	F1	Hmin			Hmax	
WBE 100-VA	1	60 (2.36)	160 (6.3)	50 (1.97)	90 (3.54)	145 (5.71)	20 (0.79)	M8	-	G1/8	0,9 (1.98)	0,2	0,6	
WBE 150-VA	2	45 (1.77)	165 (6.5)	51 (2.01)	108 (4.25)	165 (6.5)	44,5 (1.75)	M8	-	G1/4	1,2 (2.65)	0,2	0,6	
WBE 200-VA	2	64 (2.52)	180 (7.09)	51 (2.01)	108 (4.25)	165 (6.5)	44,5 (1.75)	M8	-	G1/4	1,2 (2.65)	0,5	1,1	
WBE 300-VA	2	85 (3.35)	230 (9.06)	50 (1.97)	141 (5.55)	215 (8.46)	70 (2.76)	M8	-	G3/4	2 (4.41)	0,9	2,1	
WBE 320-VA	2	120 (4.72)	250 (9.84)	51 (2.01)	141 (5.55)	235 (9.25)	70 (2.76)	M8	-	G3/4	1,9 (4.19)	1,2	3,2	
WBE 400-VA	3	90 (3.54)	265 (10.43)	51 (2.01)	161 (6.34)	250 (9.84)	89 (3.5)	M8	38,1 (1.5)	G3/4	2,3 (5.07)	1,0	3,1	
WBE 500-VA	3	100 (3.94)	340 (13.39)	51 (2.01)	228 (8.98)	325 (12.8)	157,5 (6.2)	M8	73 (2.87)	G3/4	4,1 (9.04)	3,3	7,7	
WBE 600-VA	4	125 (4.92)	400 (15.75)	51 (2.01)	287 (11.3)	385 (15.16)	158,8 (6.25)	M8	158,8 (6.25)	G3/4	5,9 (13.01)	3,3	10,8	
WBE 700-VA	4	135 (5.31)	420 (16.54)	51 (2.01)	287 (11.3)	405 (15.94)	158,8 (6.25)	M8	158,8 (6.25)	G3/4	6,1 (13.45)	3,6	13,0	
WBZ 100-VA	1	100 (3.94)	160 (6.3)	70 (2.76)	90 (3.54)	145 (5.71)	20 (0.79)	M8	-	G1/8	1,1 (2.43)	0,4	1,2	
WBZ 200-VA	2	128 (5.04)	180 (7.09)	75 (2.95)	108 (4.25)	165 (6.5)	44,5 (1.75)	M8	-	G1/4	1,5 (3.31)	0,6	1,9	
WBZ 320-VA	2	193 (7.6)	235 (9.25)	77 (3.03)	141 (5.55)	218 (8.58)	70 (2.76)	M8	-	G3/4	2,3 (5.07)	1,6	5,0	
WBZ 430-VA	3	248 (9.76)	275 (10.83)	77 (3.03)	161 (6.34)	260 (10.24)	89 (3.5)	M8	38,1 (1.5)	G3/4	3,5 (7.72)	4,0	9,8	
WBZ 500-VA	3	230 (9.06)	340 (13.39)	75 (2.95)	228 (8.98)	325 (12.8)	157,5 (6.2)	M8	66 (2.6)	G1	4,8 (10.58)	4,0	14,2	
WBZ 520-VA	3	283 (11.14)	355 (13.98)	77 (3.03)	228 (8.98)	340 (13.39)	157,5 (6.2)	M8	73 (2.87)	G3/4	5,1 (11.25)	5,0	15,0	
WBZ 630-VA	2	320 (12.6)	415 (16.34)	77 (3.03)	287 (11.3)	400 (15.75)	158,8 (6.25)	M8	158,8 (6.25)	G3/4	7,3 (16.1)	5,8	25,6	
WBD 500-VA	3	280 (11.02)	345 (13.58)	110 (4.33)	228 (8.98)	325 (12.8)	157,5 (6.2)	M8	73 (2.87)	G3/4	5,9 (13.01)	5,0	26,0	
WBD 600-VA	4	325 (12.8)	410 (16.14)	110 (4.33)	287 (11.3)	384 (15.12)	158,8 (6.25)	M8	158,8 (6.25)	G3/4	8 (17.64)	5,5	33,1	
WBD 700-VA	4	395 (15.55)	430 (16.93)	115 (4.53)	287 (11.3)	405 (15.94)	158,8 (6.25)	M8	158,8 (6.25)	G3/4	9,3 (20.51)	9,6	37,3	

WBE

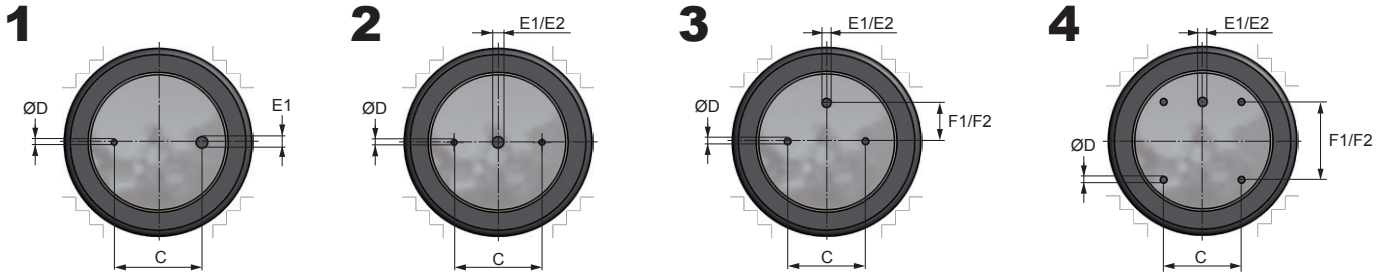


WBZ



WBD





** E1 - F1 / E2 - F2

ACTUATION

	Height			Load (kN)			Height			Load (kN)			Height			Load (kN)		
	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)		
WBE 100-VA	60 (2.36)	1,8 (0.4)	3,5 (0.79)	5,2 (1.17)	80 (3.15)	1,4 (0.31)	2,8 (0.63)	4,2 (0.94)	100 (3.94)	0,8 (0.18)	1,6 (0.36)	2,5 (0.56)						
WBE 150-VA	60 (2.36)	2 (0.45)	4 (0.9)	6 (1.35)	70 (2.76)	1,8 (0.4)	3,4 (0.76)	5,1 (1.15)	80 (3.15)	1,5 (0.34)	2,7 (0.61)	4 (0.9)						
WBE 200-VA	60 (2.36)	2,8 (0.63)	4,8 (1.08)	8,2 (1.84)	90 (3.54)	1,5 (0.34)	3,6 (0.81)	5,6 (1.26)	100 (3.94)	1,2 (0.27)	3,1 (0.7)	4,8 (1.08)						
WBE 300-VA	60 (2.36)	4,1 (0.92)	8,2 (1.84)	13 (2.92)	90 (3.54)	3,3 (0.74)	6,8 (1.53)	10,8 (2.43)	120 (4.72)	1,9 (0.43)	4,3 (0.97)	6,9 (1.55)						
WBE 320-VA	70 (2.76)	4,6 (1.03)	9,2 (2.07)	13,7 (3.08)	110 (4.33)	3,9 (0.88)	7,8 (1.75)	11,8 (2.65)	150 (5.91)	2,5 (0.56)	5,1 (1.15)	7,9 (1.78)						
WBE 400-VA	60 (2.36)	5,5 (1.24)	11,3 (2.54)	17,1 (3.84)	90 (3.54)	4,6 (1.03)	9,4 (2.11)	14,6 (3.28)	120 (4.72)	3,1 (0.7)	6,2 (1.39)	10,4 (2.34)						
WBE 500-VA	60 (2.36)	10,5 (2.36)	21,6 (4.86)	32,6 (7.33)	90 (3.54)	9,5 (2.14)	19,2 (4.32)	29,1 (6.54)	120 (4.72)	8 (1.8)	15,7 (3.53)	23,8 (5.35)						
WBE 600-VA	70 (2.76)	17 (3.82)	32 (7.19)	48,8 (10.97)	110 (4.33)	13,8 (3.1)	27,4 (6.16)	41,7 (9.37)	150 (5.91)	9 (2.02)	19 (4.27)	30 (6.74)						
WBE 700-VA	80 (3.15)	17 (3.82)	33,4 (7.51)	50,3 (11.31)	140 (5.51)	13,3 (2.99)	26,8 (6.02)	40,6 (9.13)	160 (6.3)	11,4 (2.56)	23 (5.17)	35 (7.87)						
WBZ 100-VA	80 (3.15)	1,8 (0.4)	3,5 (0.79)	5,4 (1.21)	120 (4.72)	1,4 (0.31)	2,7 (0.61)	4,1 (0.92)	140 (5.51)	1,1 (0.25)	2,2 (0.49)	3,3 (0.74)						
WBZ 200-VA	80 (3.15)	2,8 (0.63)	5,7 (1.28)	8,5 (1.91)	140 (5.51)	1,9 (0.43)	3,9 (0.88)	5,8 (1.3)	180 (7.09)	1,1 (0.25)	2,3 (0.52)	3,5 (0.79)						
WBZ 320-VA	80 (3.15)	4,9 (1.1)	9,7 (2.18)	14,7 (3.3)	160 (6.3)	3,9 (0.88)	7,8 (1.75)	11,9 (2.68)	200 (7.87)	3,2 (0.72)	6,2 (1.39)	9,6 (2.16)						
WBZ 430-VA	110 (4.33)	6,2 (1.39)	12,3 (2.77)	18,7 (4.2)	170 (6.69)	5,5 (1.24)	11 (2.47)	16,6 (3.73)	290 (11.42)	2,7 (0.61)	5,6 (1.26)	9 (2.02)						
WBZ 500-VA	100 (3.94)	11,2 (2.52)	22,1 (4.97)	34,1 (7.67)	160 (6.3)	9,7 (2.18)	9,4 (2.11)	29,5 (6.63)	240 (9.45)	6,7 (1.51)	13,3 (2.99)	20,6 (4.63)						
WBZ 520-VA	100 (3.94)	12,2 (2.74)	24,4 (5.49)	36,3 (8.16)	220 (8.66)	9,7 (2.18)	19,4 (4.36)	29,4 (6.61)	320 (12.6)	4,4 (0.99)	10,8 (2.43)	17 (3.82)						
WBZ 630-VA	100 (3.94)	18,6 (4.18)	36,8 (8.27)	52,4 (11.78)	220 (8.66)	14 (3.15)	28 (6.29)	42 (9.44)	300 (11.81)	8,6 (1.93)	17,7 (3.98)	27,7 (6.23)						
WBD 500-VA	140 (5.51)	11,3 (2.54)	22,4 (5.04)	33,6 (7.55)	260 (10.24)	9,1 (2.05)	18,2 (4.09)	27,6 (6.2)	380 (14.96)	5,9 (1.33)	11,9 (2.68)	18,4 (4.14)						
WBD 600-VA	160 (6.3)	16,3 (3.66)	32,3 (7.26)	49,1 (11.04)	280 (11.02)	13,3 (2.99)	26,7 (6)	40,8 (9.17)	360 (14.17)	10 (2.25)	20,8 (4.68)	32 (7.19)						
WBD 700-VA	140 (5.51)	18,2 (4.09)	36,3 (8.16)	54,5 (12.25)	300 (11.81)	14,2 (3.19)	28,4 (6.38)	43,4 (9.76)	380 (14.96)	11,8 (2.65)	23,8 (5.35)	36,4 (8.18)						

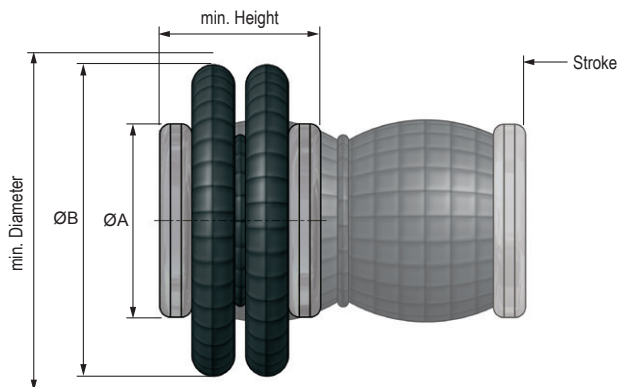
VIBRATION ISOLATION

	Force (kN) at recomm. design height (1000*lbs)			Natural frequency			U/min		Height		
	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	min. mm (inch)	opt. mm (inch)
	Hz	Hz	Hz	Hz	Hz	Hz	Hz	Hz	Hz	Hz	Hz
WBE 100-VA	1,1 (0.25)	2,3 (0.52)	3,4 (0.76)	3,5	3,3	3,3	210	198	198	70 (2.76)	90 (3.54)
WBE 150-VA	1,5 (0.34)	3 (0.67)	4,6 (1.03)	3,9	3,8	3,7	234	228	222	65 (2.56)	75 (2.95)
WBE 200-VA	1,6 (0.36)	3,9 (0.88)	5,7 (1.28)	3,1	2,9	2,8	186	174	168	70 (2.76)	90 (3.54)
WBE 300-VA	2,5 (0.56)	5,4 (1.21)	8,5 (1.91)	3,0	2,7	2,6	180	162	156	90 (3.54)	110 (4.33)
WBE 320-VA	2,8 (0.63)	5,8 (1.3)	8,9 (2)	2,6	2,5	2,4	156	150	144	125 (4.92)	140 (5.51)
WBE 400-VA	3,7 (0.83)	7,5 (1.69)	11,9 (2.68)	2,8	2,6	2,6	168	156	150	90 (3.54)	110 (4.33)
WBE 500-VA	7 (1.57)	14,2 (3.19)	21,8 (4.9)	2,6	2,4	2,3	156	144	138	100 (3.94)	130 (5.12)
WBE 600-VA	10 (2.25)	20,1 (4.52)	31,6 (7.1)	2,5	2,5	2,4	150	144	144	110 (4.33)	145 (5.71)
WBE 700-VA	12,4 (2.79)	24,9 (5.6)	37,9 (8.52)	2,3	2,1	2,0	138	132	126	120 (4.72)	150 (5.91)
WBZ 100-VA	0,7 (0.16)	1,5 (0.34)	2,4 (0.54)	2,8	2,8	2,7	168	168	162	150 (5.91)	160 (6.3)
WBZ 200-VA	1,3 (0.29)	2,5 (0.56)	3,8 (0.85)	2,5	2,5	2,4	150	144	144	160 (6.3)	175 (6.89)
WBZ 320-VA	3,1 (0.7)	6,2 (1.39)	9,4 (2.11)	1,9	1,8	1,8	114	108	108	190 (7.48)	205 (8.07)
WBZ 430-VA	4 (0.9)	8,1 (1.82)	12,3 (2.77)	1,8	1,8	1,7	108	108	102	230 (9.06)	254 (10)
WBZ 500-VA	6,7 (1.51)	13,3 (2.99)	20,6 (4.63)	2,1	1,9	1,8	126	108	108	220 (8.66)	240 (9.45)
WBZ 600-VA	10,1 (2.27)	20,7 (4.65)	31,5 (7.08)	1,9	1,8	1,8	114	108	108	225 (8.86)	250 (9.84)



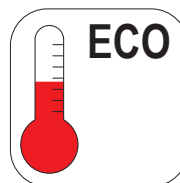
High-Temperature Version

ECO



Temperature: 50°C - 115°C (122°F - 239°F)
(limited duration 130°C / 266°F)

- Resistant to mineral oils
- Bellows made of synthetic rubber



DIMENSIONS

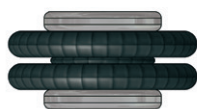
	Connection	Stroke mm / inch (max.)	min. Diameter mm (inch)	min. Height mm (inch)	Ø A Ø B		C	D	F	E	Weight kg (lbs)	Volume in litre	
					mm (inch)							Hmin	Hmax
WBE 150-ECO	2	41 (1.61)	165 (6.5)	54 (2.13)	108 (4.25)	150 (5.91)	44,5 (1.75)	M8	-	G1/4	1,4 (3.09)	0,2	0,6
WBE 200-ECO	2	61 (2.4)	180 (7.09)	54 (2.13)	108 (4.25)	165 (6.5)	44,5 (1.75)	M8	-	G1/4	1,2 (2.65)	0,5	1,1
WBE 250-ECO	2	77 (3.03)	225 (8.86)	54 (2.13)	114 (4.49)	210 (8.27)	44,5 (1.75)	M8	-	G1/4	1,4 (3.09)	1,0	2,2
WBE 300-ECO	2	82 (3.23)	230 (9.06)	53 (2.09)	141 (5.55)	215 (8.46)	70 (2.76)	M8	-	G3/4	2 (4.41)	0,7	2,1
WBE 320-ECO	2	117 (4.61)	250 (9.84)	54 (2.13)	141 (5.55)	235 (9.25)	70 (2.76)	M8	-	G3/4	1,9 (4.19)	1,2	3,2
WBE 400-ECO	3	87 (3.43)	265 (10.43)	54 (2.13)	161 (6.34)	250 (9.84)	89 (3.5)	M8	38,1 (1.5)	G3/4	2,3 (5.07)	1,0	3,1
WBE 500-ECO	3	96 (3.78)	340 (13.39)	54 (2.13)	228 (8.98)	325 (12.8)	157,5 (6.2)	M8	66 (2.6)	G3/4	4,1 (9.04)	3,3	7,7
WBE 600-ECO	4	121 (4.76)	400 (15.75)	54 (2.13)	287 (11.3)	385 (15.16)	158,8 (6.25)	M8	158,8 (6.25)	G3/4	5,9 (13.01)	3,3	10,8
WBZ 200-ECO	2	125 (4.92)	180 (7.09)	78 (3.07)	108 (4.25)	165 (6.5)	44,5 (1.75)	M8	-	G1/4	1,5 (3.31)	0,6	1,9
WBZ 320-ECO	2	190 (7.48)	235 (9.25)	80 (3.15)	141 (5.55)	218 (8.58)	70 (2.76)	M8	-	G3/4	2,3 (5.07)	1,6	5,0
WBZ 430-ECO	3	248 (9.76)	275 (10.83)	77 (3.03)	161 (6.34)	260 (10.24)	89 (3.5)	M8	38,1 (1.5)	G3/4	3,5 (7.72)	4,0	9,8
WBZ 500-ECO	3	230 (9.06)	340 (13.39)	75 (2.95)	228 (8.98)	325 (12.8)	157,5 (6.2)	M8	66 (2.6)	G3/4	4,8 (10.58)	4,0	14,2
WBZ 520-ECO	3	283 (11.14)	355 (13.98)	77 (3.03)	228 (8.98)	340 (13.39)	157,5 (6.2)	M8	66 (2.6)	G3/4	5,1 (11.25)	3,7	15,0
WBZ 630-ECO	4	233 (9.17)	400 (15.75)	77 (3.03)	287 (11.3)	385 (15.16)	158,8 (6.25)	M8	158,8 (6.25)	G3/4	6,9 (15.21)	5,4	22,8

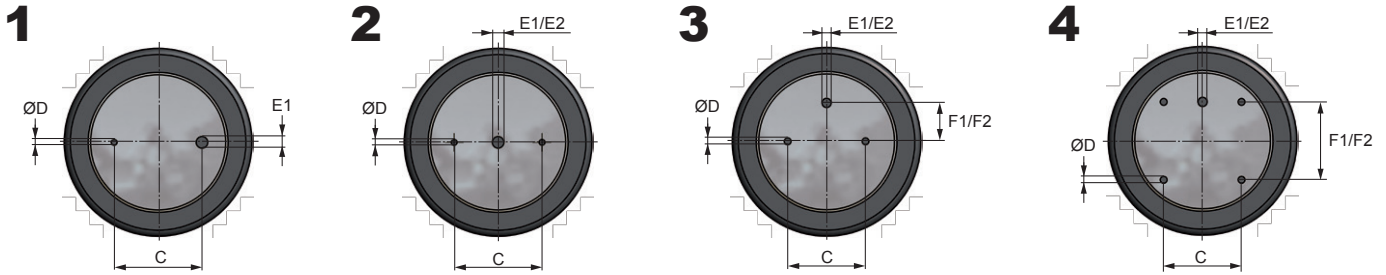
On enquiry: WBZ-G 350 / WBZ-G 650

WBE



WBZ





** E1 - F1 / E2 - F2

ACTUATION

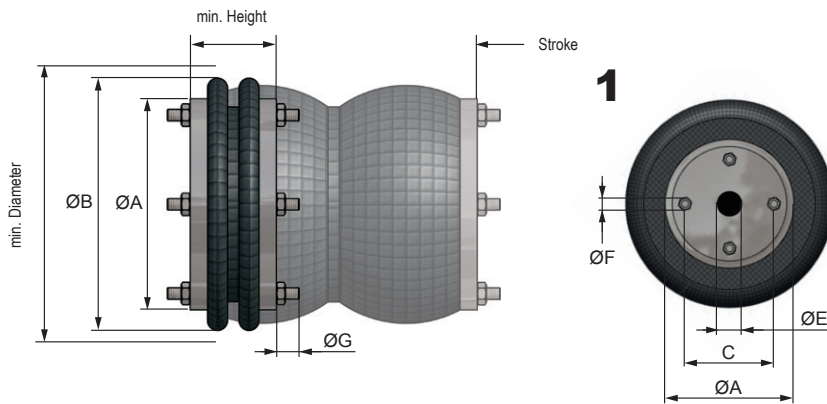
	Heigh			Load (kN)			Heigh			Load (kN)			Heigh			Load (kN)		
	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)		
WBE 150-ECO	60 (2.36)	2 (0.45)	4 (0.9)	6 (1.35)	70 (2.76)	1,8 (0.4)	3,4 (0.76)	5,1 (1.15)	80 (3.15)	1,5 (0.34)	2,7 (0.61)	4 (0.9)						
WBE 200-ECO	60 (2.36)	2,8 (0.63)	4,8 (1.08)	7,2 (1.62)	90 (3.54)	1,5 (0.34)	3,6 (0.81)	5,6 (1.26)	100 (3.94)	1,2 (0.27)	3,1 (0.7)	4,8 (1.08)						
WBE 250-ECO	70 (2.76)	3,3 (0.74)	6,6 (1.48)	10,2 (2.29)	100 (3.94)	2,6 (0.58)	5,2 (1.17)	8 (1.8)	120 (4.72)	1,8 (0.4)	3,7 (0.83)	5,8 (1.3)						
WBE 300-ECO	60 (2.36)	4,1 (0.92)	9,2 (2.07)	13 (2.92)	90 (3.54)	3,3 (0.74)	6,8 (1.53)	10,8 (2.43)	120 (4.72)	1,9 (0.43)	4,3 (0.97)	6,9 (1.55)						
WBE 320-ECO	70 (2.76)	4,6 (1.03)	9,2 (2.07)	13,7 (3.08)	110 (4.33)	3,9 (0.88)	7,8 (1.75)	11,8 (2.65)	150 (5.91)	2,5 (0.56)	5,1 (1.15)	7,9 (1.78)						
WBE 400-ECO	60 (2.36)	5,5 (1.24)	11,3 (2.54)	17,1 (3.84)	90 (3.54)	4,6 (1.03)	9,4 (2.11)	14,6 (3.28)	120 (4.72)	3,1 (0.7)	6,2 (1.39)	10,4 (2.34)						
WBE 500-ECO	60 (2.36)	10,5 (2.36)	21,6 (4.86)	32,6 (7.33)	90 (3.54)	9,5 (2.14)	19,2 (4.32)	29,1 (6.54)	120 (4.72)	8 (1.8)	15,7 (3.53)	23,8 (5.35)						
WBE 600-ECO	70 (2.76)	17 (3.82)	32 (7.19)	48,8 (10.97)	110 (4.33)	13,8 (3.1)	27,4 (6.16)	41,7 (9.37)	150 (5.91)	9 (2.02)	19 (4.27)	30 (6.74)						
WBZ 200-ECO	80 (3.15)	2,8 (0.63)	5,7 (1.28)	8,5 (1.91)	140 (5.51)	1,9 (0.43)	3,9 (0.88)	5,8 (1.3)	180 (7.09)	1,1 (0.25)	2,3 (0.52)	3,5 (0.79)						
WBZ 320-ECO	80 (3.15)	4,9 (1.1)	9,7 (2.18)	14,7 (3.3)	160 (6.3)	3,9 (0.88)	7,8 (1.75)	11,9 (2.68)	200 (7.87)	3,2 (0.72)	6,2 (1.39)	9,6 (2.16)						
WBZ 430-ECO	110 (4.33)	6,2 (1.39)	12,3 (2.77)	18,7 (4.2)	170 (6.69)	5,5 (1.24)	11 (2.47)	16,6 (3.73)	290 (11.42)	2,7 (0.61)	5,6 (1.26)	9 (2.02)						
WBZ 500-ECO	100 (3.94)	11,2 (2.52)	22,1 (4.97)	34,1 (7.67)	160 (6.3)	9,7 (2.18)	19,4 (4.36)	29,5 (6.63)	240 (9.45)	6,7 (1.51)	13,3 (2.99)	20,6 (4.63)						
WBZ 520-ECO	100 (3.94)	12,2 (2.74)	24,4 (5.49)	36,3 (8.16)	220 (8.66)	9,7 (2.18)	19,4 (4.36)	29,4 (6.61)	320 (12.6)	4,4 (0.99)	10,8 (2.43)	17 (3.82)						
WBZ 630-ECO	100 (3.94)	16,2 (3.64)	32,3 (7.26)	48,7 (10.95)	200 (7.87)	13,1 (2.95)	26,4 (5.93)	39,8 (8.95)	240 (9.45)	11 (2.47)	22,1 (4.97)	33,5 (7.53)						

VIBRATION ISOLATION

	Force (kN) at recomm. design height (1000*lbs)			Natural frequency			U/min		Height		
	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	min. mm (inch)	opt. mm (inch)
WBE 150-ECO	1,5 (0.34)	3 (0.67)	4,6 (1.03)	3,9	3,8	3,7	234	228	222	65 (2.56)	75 (2.95)
WBE 200-ECO	1,6 (0.36)	3,7 (0.83)	5,7 (1.28)	3,1	2,9	2,8	186	174	168	70 (2.76)	90 (3.54)
WBE 250-ECO	2 (0.45)	4,3 (0.97)	6,5 (1.46)	2,8	2,7	2,7	168	162	162	100 (3.94)	110 (4.33)
WBE 300-ECO	2,5 (0.56)	5,4 (1.21)	8,5 (1.91)	3,0	2,7	2,6	180	162	156	90 (3.54)	110 (4.33)
WBE 320-ECO	2,8 (0.63)	5,8 (1.3)	8,9 (2)	2,6	2,5	2,4	156	150	144	125 (4.92)	140 (5.51)
WBE 400-ECO	3,7 (0.83)	7,5 (1.69)	11,9 (2.68)	2,8	2,6	2,6	168	156	150	90 (3.54)	110 (4.33)
WBE 500-ECO	7 (1.57)	14,2 (3.19)	21,8 (4.9)	2,6	2,4	2,3	156	144	138	100 (3.94)	130 (5.12)
WBE 600-ECO	10 (2.25)	20,1 (4.52)	31,6 (7.1)	2,5	2,5	2,4	150	144	144	110 (4.33)	145 (5.71)
WBZ 200-ECO	1,3 (0.29)	2,5 (0.56)	3,8 (0.85)	2,5	2,5	2,4	150	144	144	160 (6.3)	175 (6.89)
WBZ 320-ECO	3,1 (0.7)	6,2 (1.39)	9,4 (2.11)	1,9	1,8	1,8	114	108	108	190 (7.48)	205 (8.07)
WBZ 430-ECO	4 (0.9)	8,1 (1.82)	12,3 (2.77)	1,8	1,8	1,7	108	108	102	230 (9.06)	254 (10)
WBZ 500-ECO	6,7 (1.51)	13,3 (2.99)	20,6 (4.63)	2,1	1,9	1,8	126	108	108	220 (8.66)	240 (9.45)
WBZ 630-ECO	10,1 (2.27)	20,7 (4.65)	31,5 (7.08)	1,9	1,8	1,8	114	108	108	225 (8.86)	250 (9.84)

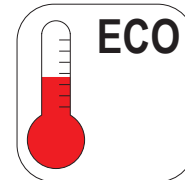


ECO



Temperature: 50°C - 115°C (122°F - 239°F)
(limited duration 130°C / 266°F)

- Resistant to mineral oils
- Bellows made of synthetic rubber



DIMENSIONS

	Connection	Stroke	min. Diameter	min. Height	mm (inch)					G	E	Weight	Volume in litre	
					mm / inch (max.)								kg	Hmin
WBE-G450-ECO	1	100 (3,94)	295 (11,61)	50 (1,97)	210 (8,27)	280 (11,02)	181 (7,13)	4xM10	27,3 (1,07)	G 1/2	3,8 (8,38)	0,9	7,2	
WBE-G550-ECO	1	100 (3,94)	345 (13,58)	50 (1,97)	260 (10,24)	330 (12,99)	231,8 (9,13)	4xM10	27,3 (1,07)	G 1/2	4,8 (10,58)	2,7	8,5	
WBE-G600-ECO	1	135 (5,31)	410 (16,14)	50 (1,97)	311 (12,24)	395 (15,55)	282,6 (11,13)	4xM10	27,3 (1,07)	G 1/2	6,9 (15,21)	3,7	16,0	
WBZ-G450-ECO	1	225 (8,86)	300 (11,81)	75 (2,95)	210 (8,27)	270 (10,63)	181 (7,13)	4xM10	29 (1,14)	G 1/2	4,8 (10,58)	1,8	8,2	
WBZ-G550-ECO	1	225 (8,86)	350 (13,78)	75 (2,95)	260 (10,24)	330 (12,99)	232 (9,13)	4xM10	29 (1,14)	G 1/2	6,5 (14,33)	4,1	14,4	
WBZ-G600-ECO	1	260 (10,24)	420 (16,54)	80 (3,15)	311 (12,24)	395 (15,55)	282,6 (11,13)	4xM10	29 (1,14)	G 1/2	9,3 (20,51)	7,7	26,5	
WBD-G450-ECO	1	330 (12,99)	300 (11,81)	100 (3,94)	210 (8,27)	270 (10,63)	181 (7,13)	4xM10	29 (1,14)	G 1/2	5,6 (12,35)	2,6	11,8	
WBD-G550-ECO	1	330 (12,99)	350 (13,78)	100 (3,94)	260 (10,24)	330 (12,99)	232 (9,13)	4xM10	29 (1,14)	G 1/2	8,1 (17,86)	4,3	19,5	
WBD-G590-ECO	1	380 (14,96)	420 (16,54)	100 (3,94)	311 (12,24)	395 (15,55)	282,6 (11,13)	4xM10	29 (1,14)	G 1/2	11,5 (25,36)	8,0	32,4	
WBD-G600-ECO	1	430 (16,93)	480 (18,9)	120 (4,72)	311 (12,24)	430 (16,93)	282,6 (11,13)	4xM10	29 (1,14)		13 (28,67)	19,0	47,3	



Operating pressure	0 - 8 bar (0 - 116.03 psi)	Temperature	+50°C - +115°C (+130°C) +122°F - +239°F (+266°F)	Compressed air	oiled / oilfree
Lateral misalignment	max. 10 - 30 mm (0.39 - 1.18 in)	Tilt capability	max. 10° - 30°	Return force	- 1800 N (404.66 lbs)

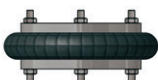
ACTUATION

	Heigth			Load (kN)			Heigth			Load (kN)		
	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)
WBE-G450-ECO	60 (2,36)	9 (2,02)	18 (4,05)	27 (6,07)	100 (3,94)	7 (1,57)	14 (3,15)	21 (4,72)	140 (5,51)	3 (0,67)	6 (1,35)	9 (2,02)
WBE-G550-ECO	60 (2,36)	13 (2,92)	26 (5,85)	39 (8,77)	100 (3,94)	10 (2,25)	20 (4,5)	30 (6,74)	140 (5,51)	4,4 (0,99)	8,8 (1,98)	13,2 (2,97)
WBE-G600-ECO	60 (2,36)	17 (3,82)	34 (7,64)	51 (11,47)	110 (4,33)	9 (2,02)	18 (4,05)	27 (6,07)	160 (6,3)	9,6 (2,16)	19,2 (4,32)	28,8 (6,47)
WBZ-G450-ECO	100 (3,94)	12,2 (2,74)	17,2 (3,87)	26 (5,85)	200 (7,87)	8,2 (1,84)	10,8 (2,43)	16,6 (3,73)	250 (9,84)	5,6 (1,26)	7,8 (1,75)	12,2 (2,74)
WBZ-G550-ECO	100 (3,94)	18 (4,05)	25,9 (5,82)	38,3 (8,61)	200 (7,87)	11,8 (2,65)	19,5 (4,38)	26,7 (6)	250 (9,84)	7,8 (1,75)	12,8 (2,88)	19,9 (4,47)
WBZ-G600-ECO	80 (3,15)	20,4 (4,59)	39,9 (8,97)	59,6 (13,4)	200 (7,87)	14,3 (3,21)	28,9 (6,5)	44,4 (9,98)	280 (11,02)	9,1 (2,05)	18,9 (4,25)	-
WBD-G450-ECO	150 (5,91)	11,8 (2,65)	15,8 (3,55)	23,7 (5,33)	250 (9,84)	8,5 (1,91)	11,2 (2,52)	17 (3,82)	350 (13,78)	5,4 (1,21)	7,9 (1,78)	11,1 (2,5)
WBD-G550-ECO	150 (5,91)	18,5 (4,16)	23,1 (5,19)	37,8 (8,5)	250 (9,84)	14,2 (3,19)	19,3 (4,34)	29,4 (6,61)	350 (13,78)	9,3 (2,09)	12,2 (2,74)	20,5 (4,61)
WBD-G590-ECO	100 (3,94)	20,5 (4,61)	40,6 (9,13)	60,2 (13,53)	300 (11,81)	13 (2,92)	26 (5,85)	39,2 (8,81)	400 (15,75)	9,2 (2,07)	18,6 (4,18)	28,4 (6,38)
WBD-G600-ECO	150 (5,91)	20,8 (4,68)	41,6 (9,35)	62,5 (14,05)	300 (11,81)	16,2 (3,64)	32,4 (7,28)	48,5 (10,9)	450 (17,72)	10,8 (2,43)	21,6 (4,86)	33 (7,42)

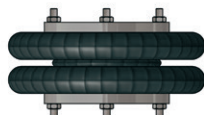
VIBRATION ISOLATION

	Force (kN) at recomm. design height (1000*lbs)			Natural frequency			U/min		Height		
	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	min. mm (inch)	opt. mm (inch)
WBE-G450-ECO	7 (1,57)	14 (3,15)	21 (4,72)	2,9	2,8	2,8	174	168	168	75 (2,95)	95 (3,74)
WBE-G550-ECO	10 (2,25)	20 (4,5)	30 (6,74)	2,9	2,8	2,8	174	168	168	75 (2,95)	95 (3,74)
WBE-G600-ECO	15 (3,37)	30 (6,74)	45 (10,12)	2,6	2,5	2,5	156	150	150	85 (3,35)	105 (4,13)
WBZ-G450-ECO	7,1 (1,6)	9,5 (2,14)	14,5 (3,26)	1,9	1,8	1,7	114	108	102	200 (7,87)	220 (8,66)
WBZ-G550-ECO	10,3 (2,32)	16,3 (3,66)	24,5 (5,51)	2,0	1,8	1,7	120	108	108	200 (7,87)	220 (8,66)
WBZ-G600-ECO	11,5 (2,59)	23,3 (5,24)	35,3 (7,94)	1,7	1,7	1,6	102	102	96	230 (9,06)	250 (9,84)

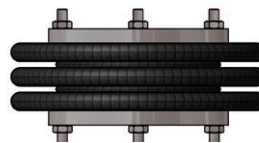
WBE-G



WBZ-G



WBD-G

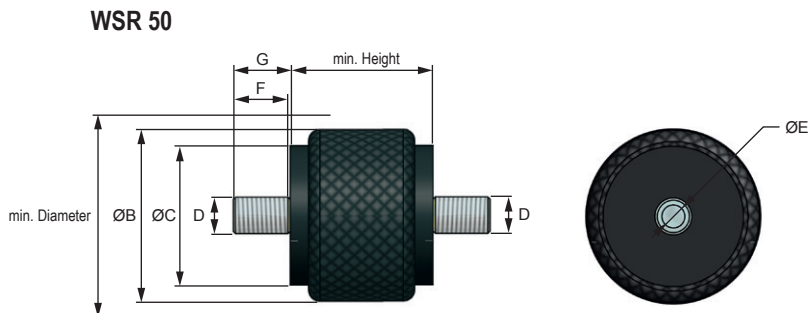
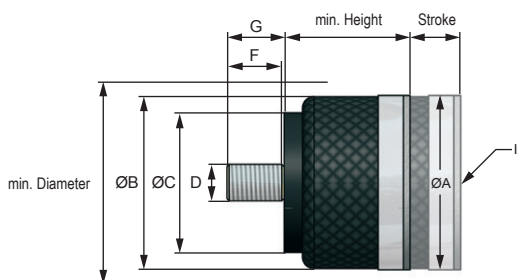


Rolling Lobes

WSR



Operating pressure	1 - 8 bar
Temperature	-30°C - max. +70°C (-22°F - max. +158°F) (+90°C / +194°F limited duration)
Compressed air	oiled / oilfree
Lateral misalignment	max. 10 mm
Tilt capability	max. 15°
Return force	350 - 950 N



DIMENSIONS

	Stroke	min. Diameter	min. Height	ø A	ø B	C	D	E	F	G	I	Weight			
												kg (lbs)	Hmin	Hmax	
mm (inch)															
WSR 20	33 (1.3)	70 (2.76)	30 (1.18)	34 (1.34)	60 (2.36)	34 (1.34)	M16	G1/8	25 (0.98)	25 (0.98)	M8	0,07 (0.15)	0,05	0,08	
WSR 30	46 (1.81)	100 (3.94)	38 (1.5)	76 (2.99)	88 (3.46)	56 (2.2)	M16	G1/8	25 (0.98)	25 (0.98)	M8	0,2 (0.44)	0,1	0,2	
WSR 40	72 (2.83)	100 (3.94)	38 (1.5)	76 (2.99)	88 (3.46)	56 (2.2)	M16	G1/8	25 (0.98)	25 (0.98)	M8	0,23 (0.51)	0,12	0,34	
WSR 50	95 (3.74)	120 (4.72)	65 (2.56)	-	100 (3.94)	61 (2.4)	M16	G1/8	25 (0.98)	25 (0.98)	-	0,35 (0.77)	-	-	
WSR 100	110 (4.33)	100 (3.94)	95 (3.74)	76,5 (3.01)	80 (3.15)	50 (1.97)	M30 x 1,5	G3/8	16 (0.63)	18 (0.71)	M8	0,4 (0.88)	0,2	0,5	
WSR 200	105 (4.13)	115 (4.53)	95 (3.74)	86,5 (3.41)	97 (3.82)	60,5 (2.38)	M30 x 1,5	G3/8	16 (0.63)	18 (0.71)	M8	0,5 (1.1)	0,3	0,7	
WSR 300	105 (4.13)	140 (5.51)	95 (3.74)	106,5 (4.19)	123 (4.84)	80,1 (3.15)	M30 x 1,5	G3/8	16 (0.63)	18 (0.71)	M8	0,6 (1.32)	0,3	1,1	
WSR 400	105 (4.13)	170 (6.69)	95 (3.74)	126,5 (4.98)	151 (5.94)	89 (3.5)	M30 x 1,5	G3/8	16 (0.63)	18 (0.71)	M8	0,7 (1.54)	0,6	1,6	
WSR 500	105 (4.13)	190 (7.48)	95 (3.74)	148 (5.83)	173 (6.81)	114 (4.49)	M30 x 1,5	G3/8	16 (0.63)	18 (0.71)	M8	1 (2.21)	1,0	2,4	
WSR 520	135 (5.31)	190 (7.48)	95 (3.74)	148 (5.83)	175 (6.89)	114 (4.49)	M30x 1,5	G3/8	16 (0.63)	18 (0.71)	M8	1,1 (2.43)	1,0	3,0	

ACTUATION

	Heigth			Load (kN)			Heigth			Load (kN)			Heigth			Load (kN)		
	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)		
WSR 20	35 (1.38)	0,4 (0.09)	0,7 (0.16)	1 (0.22)	45 (1.77)	0,3 (0.07)	0,6 (0.13)	0,9 (0.2)	55 (2.17)	0,3 (0.07)	0,4 (0.09)	0,6 (0.13)						
WSR 30	40 (1.57)	0,8 (0.18)	1,5 (0.34)	2,3 (0.52)	50 (1.97)	0,8 (0.18)	1,5 (0.34)	2,3 (0.52)	70 (2.76)	0,8 (0.18)	1,3 (0.29)	2 (0.45)						
WSR 40	45 (1.77)	1,4 (0.31)	2,2 (0.49)	3 (0.67)	65 (2.56)	0,8 (0.18)	1,4 (0.31)	2,2 (0.49)	95 (3.74)	0,7 (0.16)	1,3 (0.29)	1,9 (0.43)						
WSR 50	70 (2.76)	0,8 (0.18)	1,6 (0.36)	2,4 (0.54)	110 (4.33)	0,8 (0.18)	1,5 (0.34)	2,3 (0.52)	150 (5.91)	0,6 (0.13)	1,2 (0.27)	1,7 (0.38)						
WSR 100	100 (3.94)	0,6 (0.13)	1,1 (0.25)	1,9 (0.43)	160 (6.3)	0,6 (0.13)	1,1 (0.25)	1,7 (0.38)	190 (7.48)	0,6 (0.13)	1,2 (0.27)	1,8 (0.4)						
WSR 200	100 (3.94)	0,8 (0.18)	1,6 (0.36)	2,5 (0.56)	160 (6.3)	0,8 (0.18)	1,6 (0.36)	2,5 (0.56)	190 (7.48)	0,8 (0.18)	1,6 (0.36)	2,4 (0.54)						
WSR 300	100 (3.94)	1,4 (0.31)	2,8 (0.63)	4,2 (0.94)	160 (6.3)	1,4 (0.31)	2,8 (0.63)	4,2 (0.94)	180 (7.09)	1,4 (0.31)	2,8 (0.63)	4,3 (0.97)						
WSR 400	100 (3.94)	1,8 (0.4)	3,8 (0.85)	5,8 (1.3)	145 (5.71)	1,8 (0.4)	3,8 (0.85)	5,8 (1.3)	175 (6.89)	1,8 (0.4)	3,6 (0.81)	5,5 (1.24)						
WSR 500	100 (3.94)	2,6 (0.58)	5,4 (1.21)	8,2 (1.84)	145 (5.71)	2,6 (0.58)	5,3 (1.19)	8,1 (1.82)	175 (6.89)	2,7 (0.61)	5,4 (1.21)	8 (1.8)						
WSR 520	110 (4.33)	2,8 (0.63)	5,5 (1.24)	8,4 (1.89)	170 (6.69)	2,7 (0.61)	5,4 (1.21)	8,3 (1.87)	210 (8.27)	2,3 (0.52)	4,6 (1.03)	6,8 (1.53)						

VIBRATION ISOLATION

	Force (kN) at recomm. design height (1000*lbs)			Natural frequency			U/min			Height opt.
	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	2 bar (29.01 psi)	4 bar (58.02 psi)	6 bar (87.02 psi)	mm (inch)
WSR 20	0,3 (0.07)	0,6 (0.13)	0,9 (0.2)	3,4	3,3	3,2	204	198	192	45 (1.77)
WSR 30	0,8 (0.18)	1,4 (0.31)	2,1 (0.47)	2,7	2,7	2,6	162	162	156	60 (2.36)
WSR 40	0,8 (0.18)	1,4 (0.31)	1,8 (0.4)	2,6	2,6	2,4	156	156	144	75 (2.95)
WSR 100	0,6 (0.13)	1,1 (0.25)	1,7 (0.38)	2,3	2,1	2,0	138	126	120	150 (5.91)
WSR 200	0,8 (0.18)	1,6 (0.36)	2,5 (0.56)	2,1	1,9	1,9	126	114	108	150 (5.91)
WSR 300	1,4 (0.31)	2,8 (0.63)	4,2 (0.94)	2,2	2	1,9	132	120	108	150 (5.91)
WSR 400	1,8 (0.4)	3,7 (0.83)	5,7 (1.28)	2	1,9	1,8	120	108	108	150 (5.91)
WSR 500	2,6 (0.58)	5,3 (1.19)	8,1 (1.82)	2,3	2,2	2,1	138	132	126	140 (5.51)
WSR 520	2,8 (0.63)	5,5 (1.24)	8,4 (1.89)	2,0	1,9	1,9	120	114	114	150 (5.91)

