

BPW Brake Cylinders

for disc and drum brake axles

Technical data - Valid June 2015 - Version 1.6



1 General description

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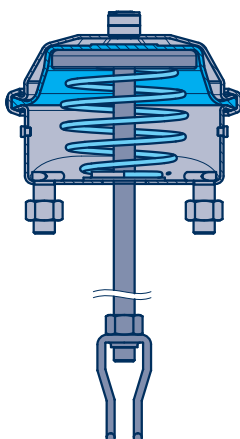
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The power plant for your brake system.

Brake cylinders from BPW.

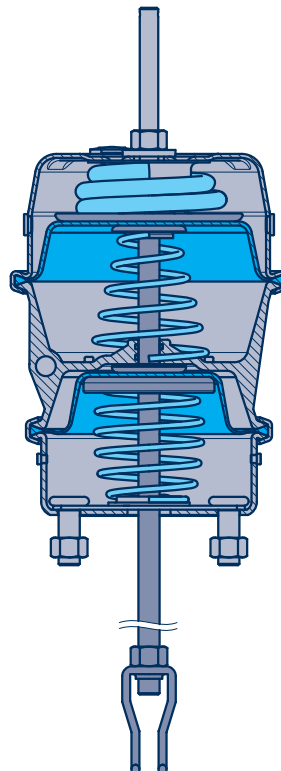
In a brake system, it is of the utmost importance to achieve an optimum interface between the individual components. The brake cylinders have a decisive role to play in this, because they have to provide a perfectly modulated force transfer within the brake system. BPW develops and produces its own brake cylinders for drum and disc brakes – further proof of our extensive expertise when it comes to brakes. As a system supplier, our product range includes diaphragm and spring-type cylinders.

Variants of BPW brake cylinders



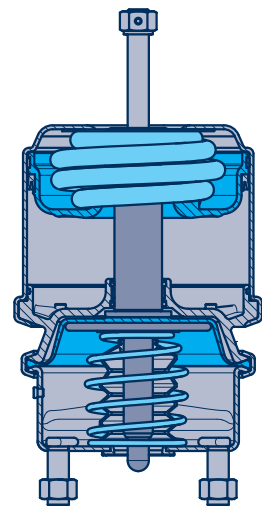
Diaphragm cylinders

They act as a service brake and are characterised by their compact external dimensions and low weight.



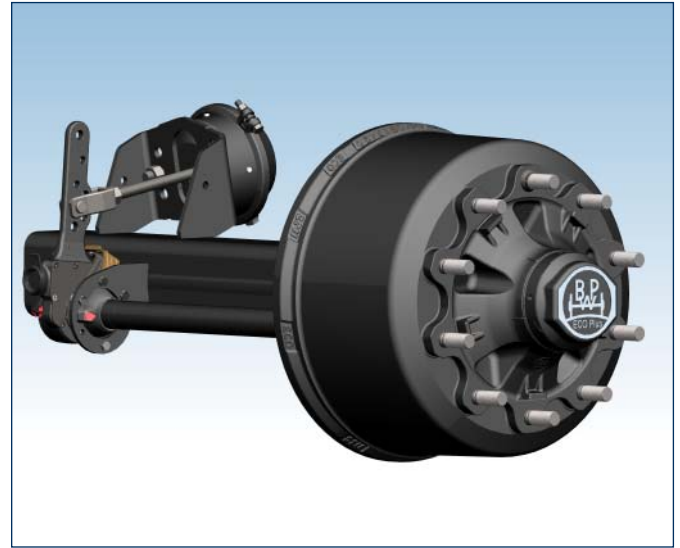
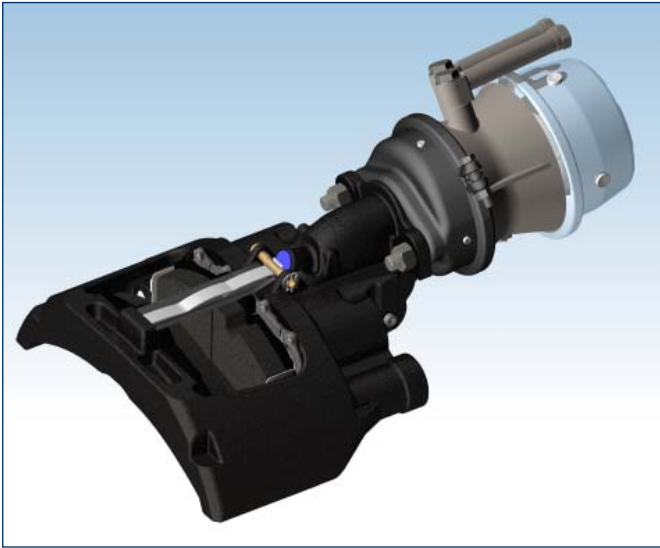
Diaphragm-diaphragm (M-M) cylinders

They act both as a service brake as well as an auxiliary and parking brake. They are lighter than the diaphragm-piston cylinder.



Diaphragm-piston (M-K) cylinders

They have the same function as a diaphragm-diaphragm cylinder. Their greater spring-type accumulator force means they are suited above all for vehicles with higher axle loads and limited installation space.



For axles with disc brakes		
Diaphragm cylinder	Diaphragm-diaphragm cylinder	Diaphragm-piston cylinder
14"	14/24"	
15"	15/24"	
16"	16/24"	16/16"
18"	18/24"	
20"	20/24"	20/24"
22"		22/24"
24"		24/24"

For axles with drum brakes	
Diaphragm cylinder	Diaphragm-diaphragm cylinder
12"	
16"	16/24"
20"	20/30"
24"	24/30"
30"	30/30"
36"	

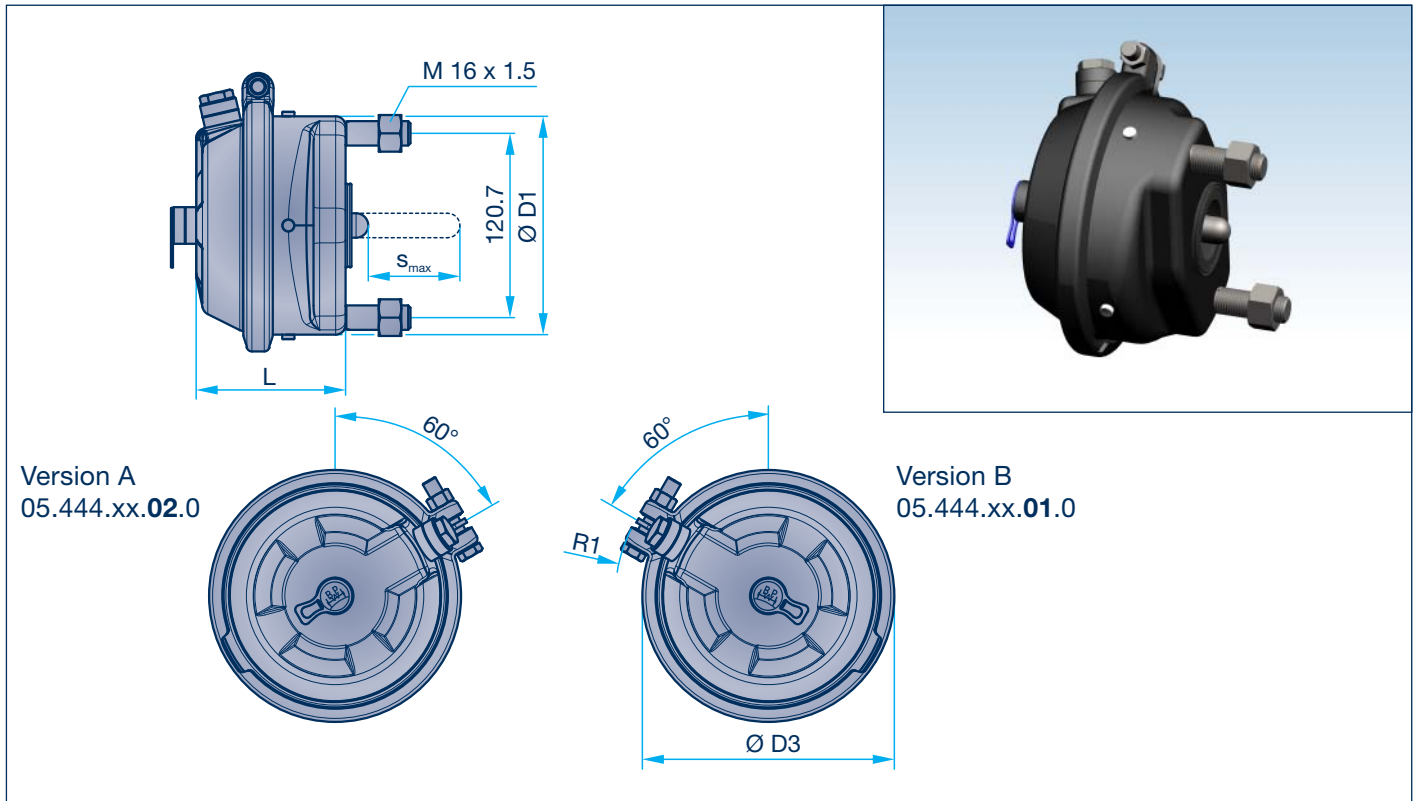
BPW Original Equipment axles can be delivered complete with brake cylinders. (Foundation brake adjustment necessary). If the lever length is > 150 mm, make sure that only long-stroke diaphragm cylinders are used. Always use long-stroke cylinders with automatic slack adjusters.

BPW brake cylinders – Features and benefits

- Sustained high quality assured by testing and continuous quality checks (FMEA, dimension test, release pressure test, functional test on the vehicle, vibration test, dirt test, fatigue strength test with one million braking cycles, hot and cold test (80° C, -40° C), force output check)
- Improved sealing using innovative flanging technique
- Optimum corrosion protection for the housing components by means of various high-quality coating procedures
- Optimum corrosion protection for the springs by means of double coating
- Inch and metric connections available
- BPW brake cylinders have long stroke capability as standard
- Easy to install because of extended compressed air connection (standard in spring-type cylinders for disc brakes)
- In drum brakes, there is no need for an external return spring between the slack adjuster and air cylinder bracket (precondition: mounting on BPW axles, round hole yoke end and lever length > 100 mm)
- Brake cylinder sizes / brake cylinder configurations are calculated using BPW brake calculations for each vehicle type. (For a questionnaire to establish the vehicle data see www.bpw.de)
- New ECE certificates and test reports are available on the BPW website

2 BPW Brake cylinder for axles with disc brakes

2.1 Diaphragm cylinder



Installation dimensions BPW brake cylinder

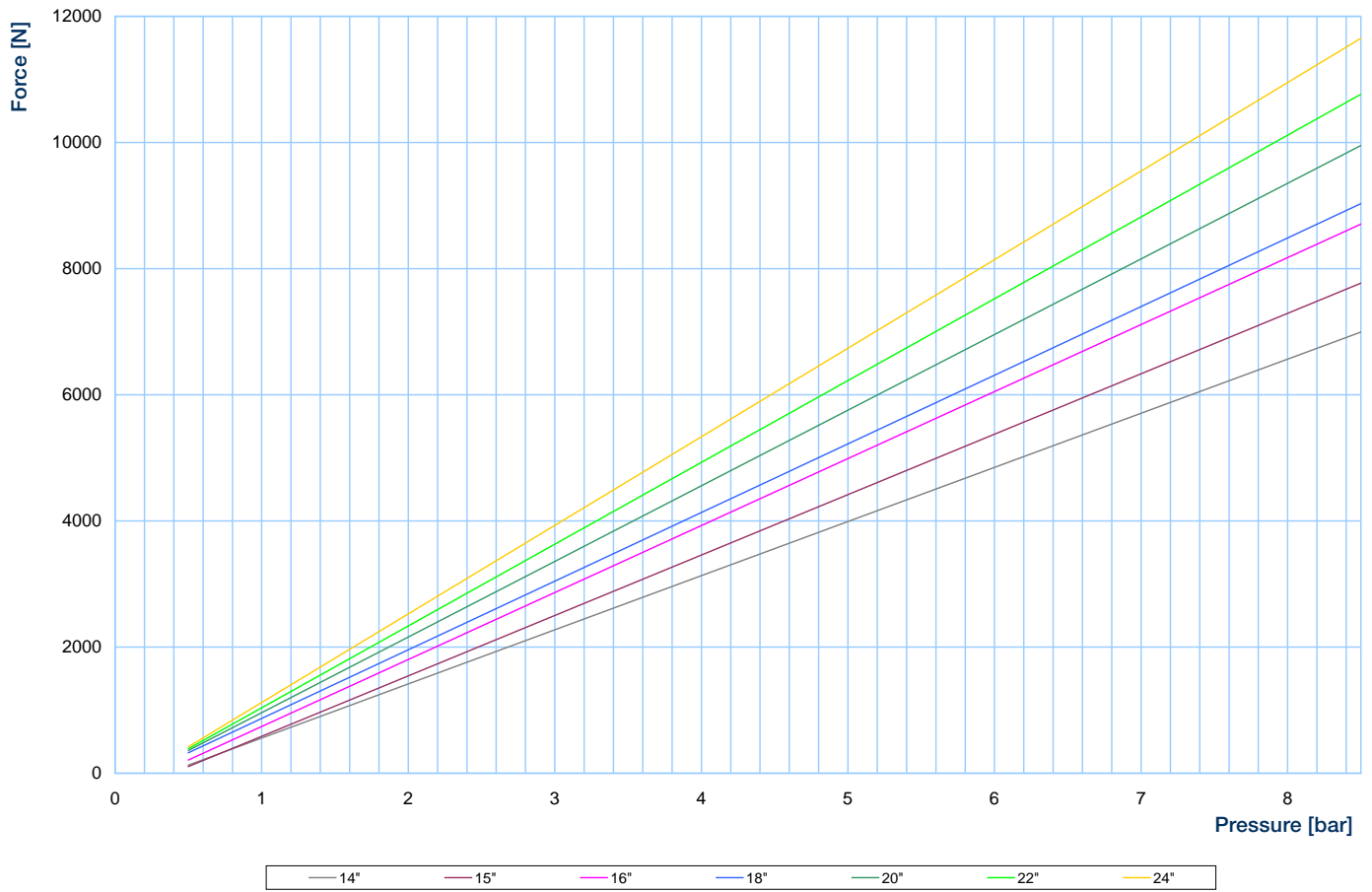
Cylinder size	L mm	D1 mm	D3 mm	R1* mm
14"	101	143	165	101.5
15"	101	143	165	101.5
16"	101	145	165	101.5
18"	108	150	176	107
20"	108	150	176	107
22"	110	160	186	112
24"	110	160	186	112

* Applies only to cylinders with a clamp lock. Current cylinder versions are beaded.

Versions of BPW brake cylinder

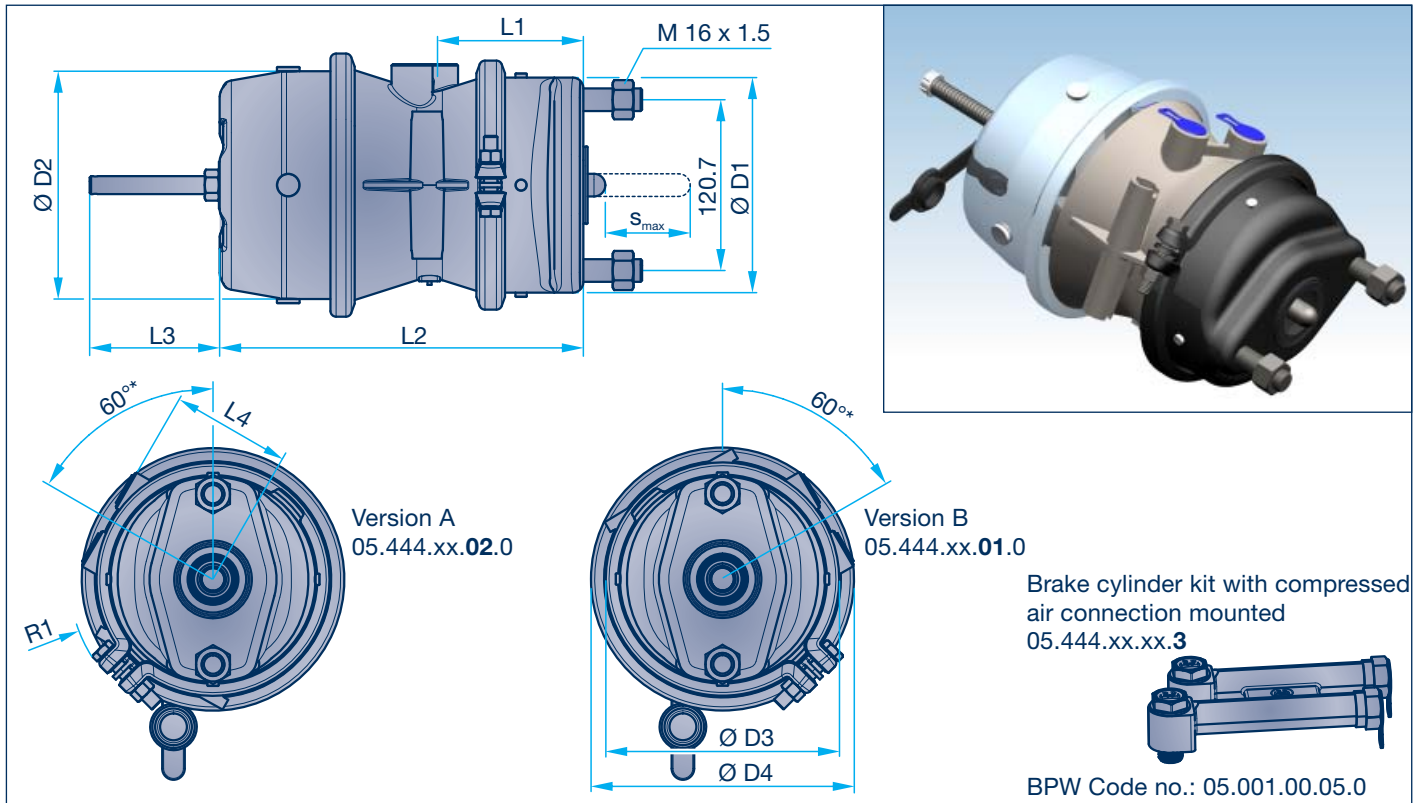
Cylinder size	Version BPW brake cylinder		Test report BC 0055.2		
	BPW Code number Version A	BPW Code number Version B	Compressed air cylinder		
			Maximum stroke s_{max} (mm)	Average thrust- Th_A (N)	Effective stroke s_p (mm)
14"	05.444.30.02.0	05.444.30.01.0	62	865p - 300	1.45p + 43
15"	05.444.31.02.0	05.444.31.01.0	60	958p - 372	0.78p + 51
16"	05.444.32.02.0	05.444.32.01.0	60	1062p - 320	0.89p + 47
18"	05.444.33.02.0	05.444.33.01.0	65	1088p - 218	1.14p + 52
20"	05.444.34.02.0	05.444.34.01.0	65	1199p - 239	0.85p + 57
22"	05.444.35.02.0	05.444.35.01.0	69	1297p - 259	0.39p + 60
24"	05.444.36.02.0	05.444.36.01.0	66	1404p - 281	0.42p + 62

Characteristic line of diaphragm cylinder 14 - 24" for disc brakes



2 BPW Brake cylinder for axles with disc brakes

2.2 Diaphragm-diaphragm (M-M) cylinders



Installation dimensions BPW brake cylinder

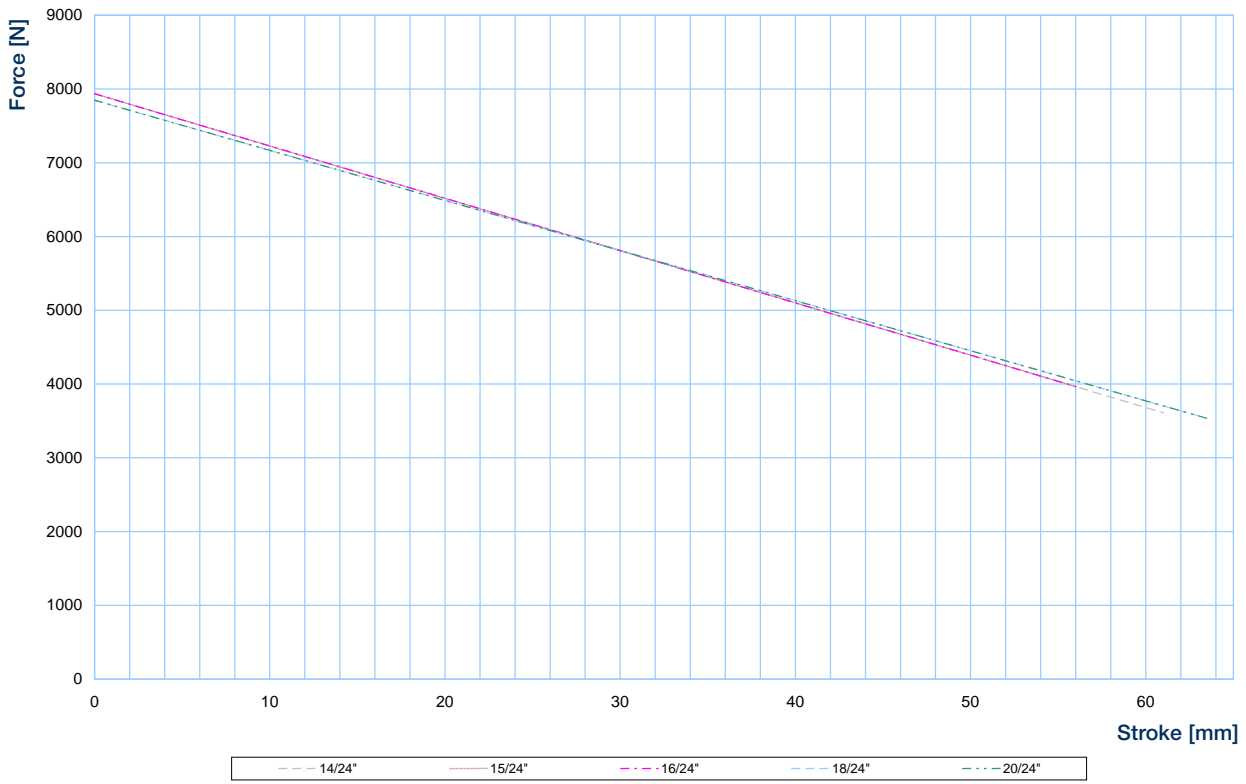
Cylinder size	Ø D1 mm	Ø D2 mm	Ø D3 mm	Ø D4 mm	R1 mm	L1 mm	L2 mm	L3 mm	L4 mm
14/24"	145	161	165	186	100	95	235	92	85.5
15/24"	145	161	165	186	100	95	235	92	85.5
16/24"	145	161	165	186	100	95	235	92	85.5
18/24"	145	161	176	186	106	103	257	92	85.5
20/24"	145	161	176	186	106	103	257	92	85.5

Versions of BPW brake cylinder

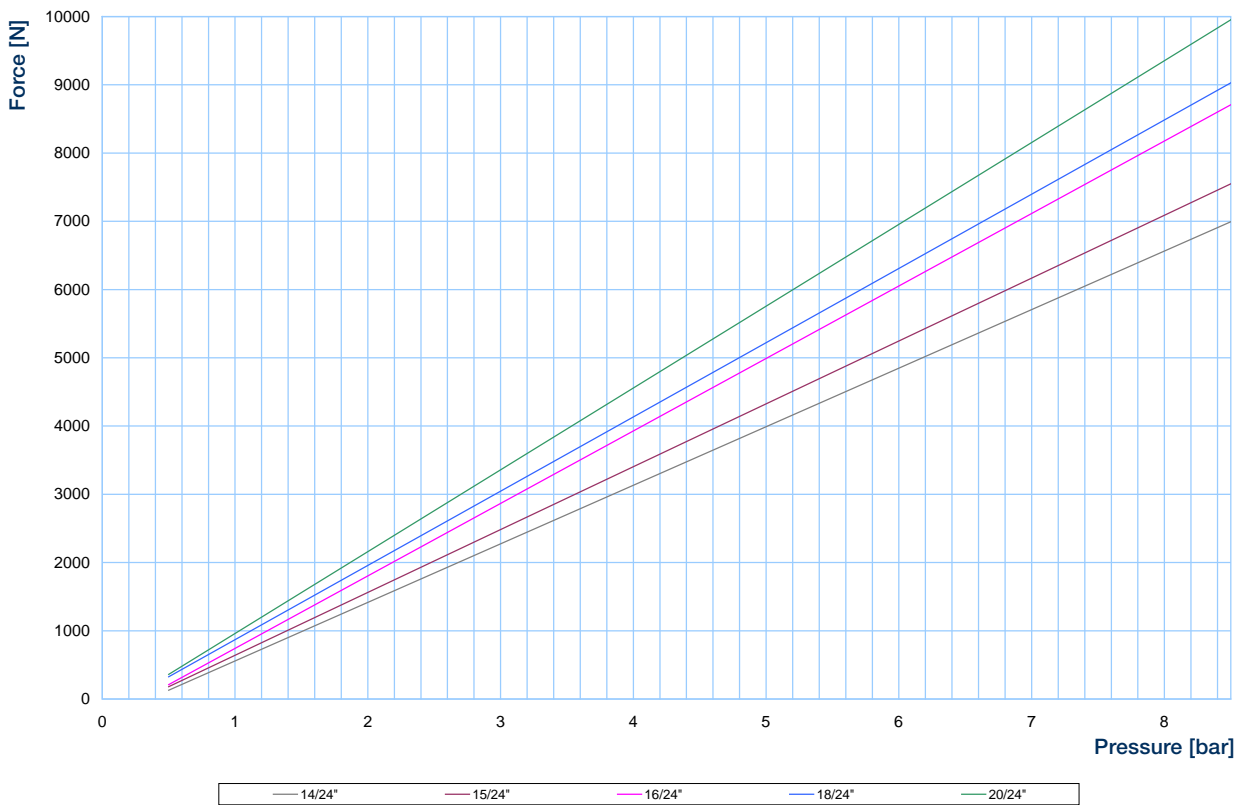
Cylinder size	Version BPW brake cylinder			Test report BC 0056.2					
	BPW Code number Version A	BPW Code number Version B	Mounting kit	Compressed air cylinder			Spring-type cylinder		
				Max. stroke s_{max} (mm)	Average thrust Th_A (N)	Effective stroke s_p (mm)	Max. stroke s_{max} (mm)	Average thrust Th_s (N)	Release pressure p_{L10} (bar)
14/24"	05.444.38.02.0	05.444.38.01.0	05.801.21.50.0	61	858p - 300	1.45p + 42	61	7939 - 71s	5.15
15/24"	05.444.39.02.0	05.444.39.01.0	05.801.21.51.0	57	921p - 280	0.57p + 50	56	7939 - 71s	5.2
16/24"	05.444.40.02.0	05.444.40.01.0	05.801.21.52.0	56	1062p - 320	0.89p + 47	56	7939 - 71s	5.0
	05.444.40.08.0	05.444.40.07.0	--						
18/24"	05.444.42.02.0	05.444.42.01.0	05.801.21.53.0	63	1088p - 218	1.14p + 52	63	7850 - 68s	5.2
	05.444.42.04.0	05.444.42.03.0	--						
20/24"	05.444.44.02.0	05.444.44.01.0	05.801.21.54.0	64	1199p - 239	0.85p + 57	63.5	7850 - 68s	5.2
	05.444.44.04.0	05.444.44.03.0	--						

* for ECO Air COMPACT (air connection rotated by 30 degrees)

Spring type characteristic line of diaphragm - diaphragm cylinder 14 - 20" for disc brakes

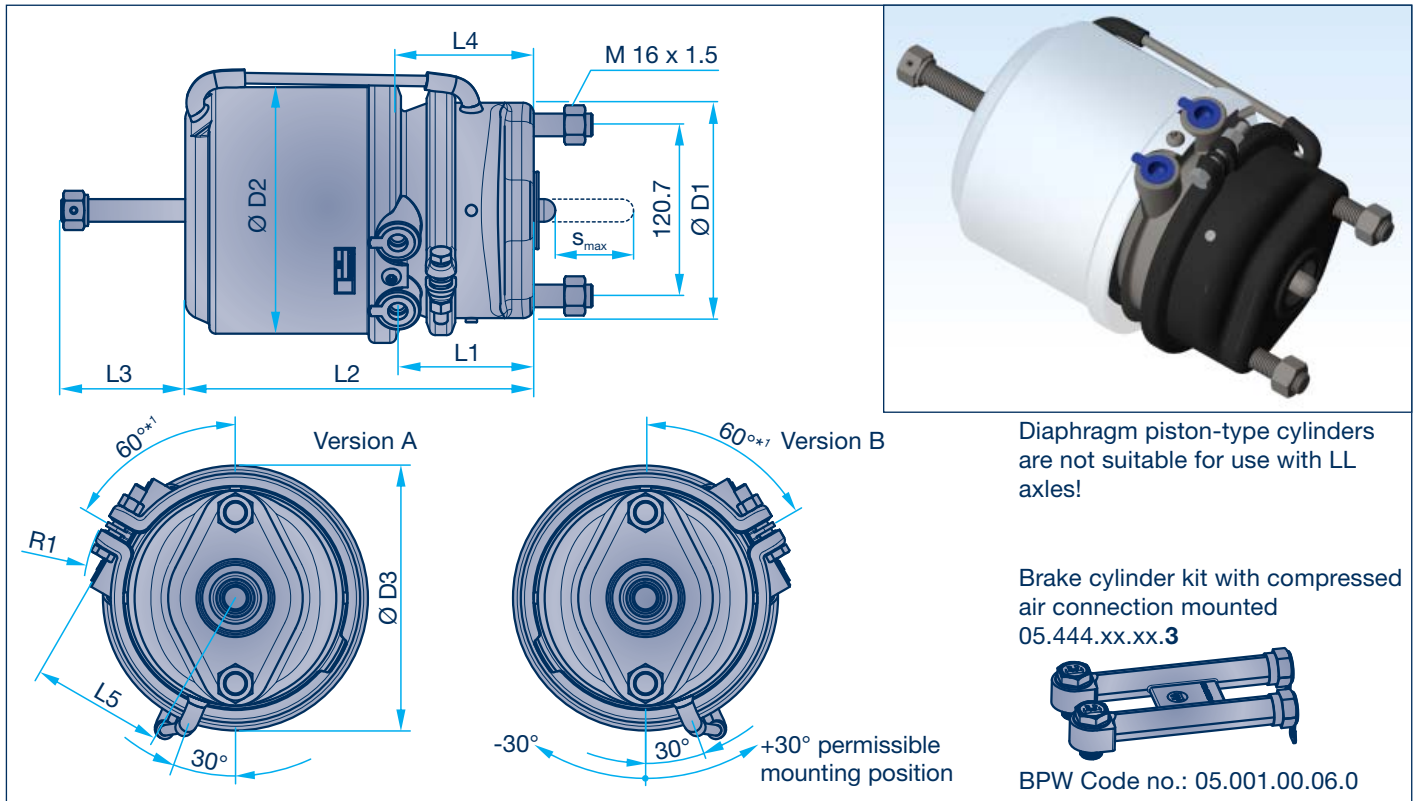


Diaphragm - diaphragm cylinder 14 - 20" for disc brakes



2 BPW Brake cylinder for axles with disc brakes

2.3 Diaphragm-piston (M-K) cylinders



Installation dimensions BPW brake cylinder

Cylinder size	Ø D1 mm	Ø D2 mm	Ø D3 mm	R1 mm	L1 mm	L2 mm	L3 mm	L4 mm	L5 mm
16/16"	145	161,6	177	104	88	230	78	90	90
20/24"	152	174	188	110	96	246	86	97	93
22/24"	163	174	188	115	99	249	86	100	95
24/24"	163	174	188	115	99	249	86	100	95

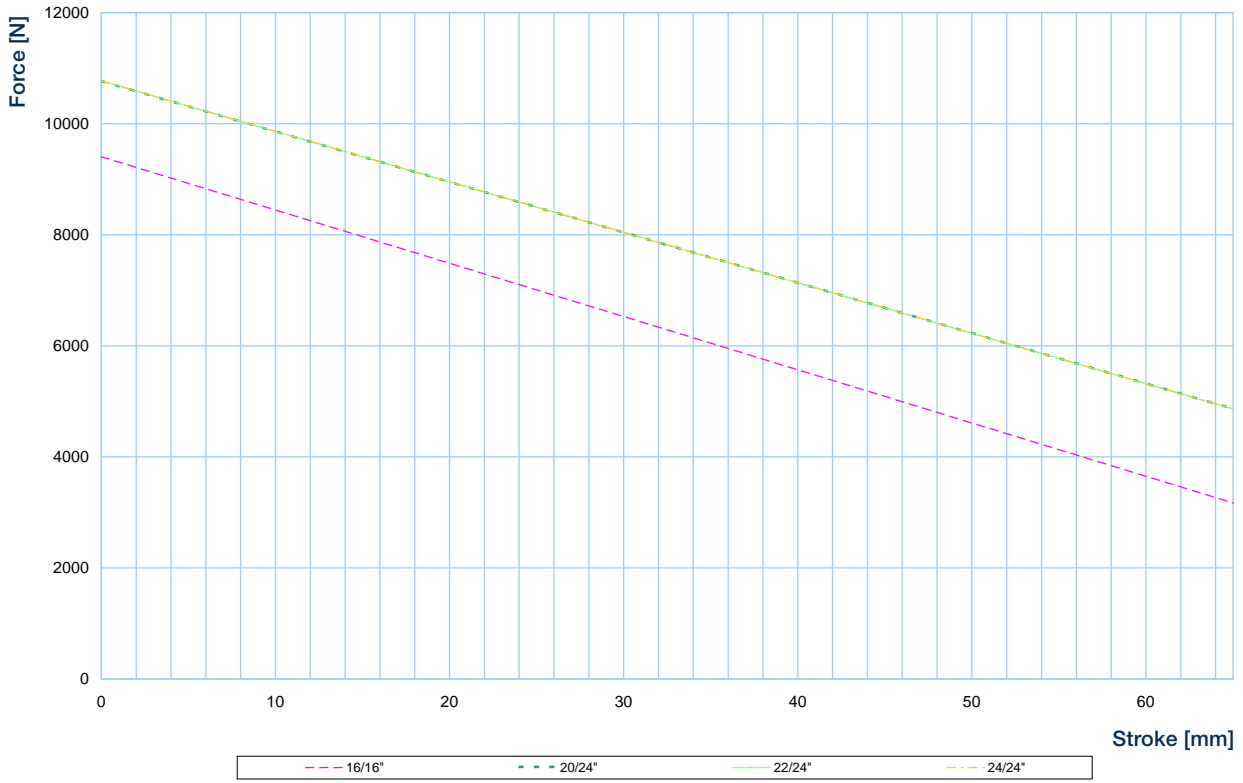
Versions of BPW brake cylinder

Cylinder size	Version BPW brake cylinder			Test report BC 0077.1						
	BPW Code number Version A	BPW Code number Version B	Mounting kit	Compressed air cylinder			Spring-type cylinder			
				Max. stroke s_{max} (mm)	Average thrust Th_A (N)	Effective stroke s_p (mm)	Max. stroke s_{max} (mm)	Average thrust Th_s (N)	Release pressure p_{L10} (bar)	
16/16"	05.444.41.02.0	05.444.41.01.0	05.801.21.55.0	60	1062p - 320	0.84p + 49	79	9408 - 96s	5.0	
	05.444.41.04.0	05.444.41.03.0	05.801.21.59.0							*
20/24"	05.444.43.02.0	05.444.43.01.0	05.801.21.56.0	68	1199p - 239	0.80p + 53	67	10775 - 91s	5.0	
	05.444.43.04.0	05.444.43.03.0	05.801.21.60.0							*
	05.444.43.06.0	05.444.43.05.0	--							*1
22/24"	05.444.45.02.0	05.444.45.01.0	05.801.21.57.0	65	1297p - 259	1.06p + 49	65	10775 - 91s	4.7	
	05.444.45.04.0	05.444.45.03.0	05.801.21.61.0							*
24/24"	05.444.46.02.0	05.444.46.01.0	05.801.21.58.0	65	1404p - 281	0.72p + 53	64.5	10775 - 91s	4.8	
	05.444.46.04.0	05.444.46.03.0	05.801.21.62.0							*

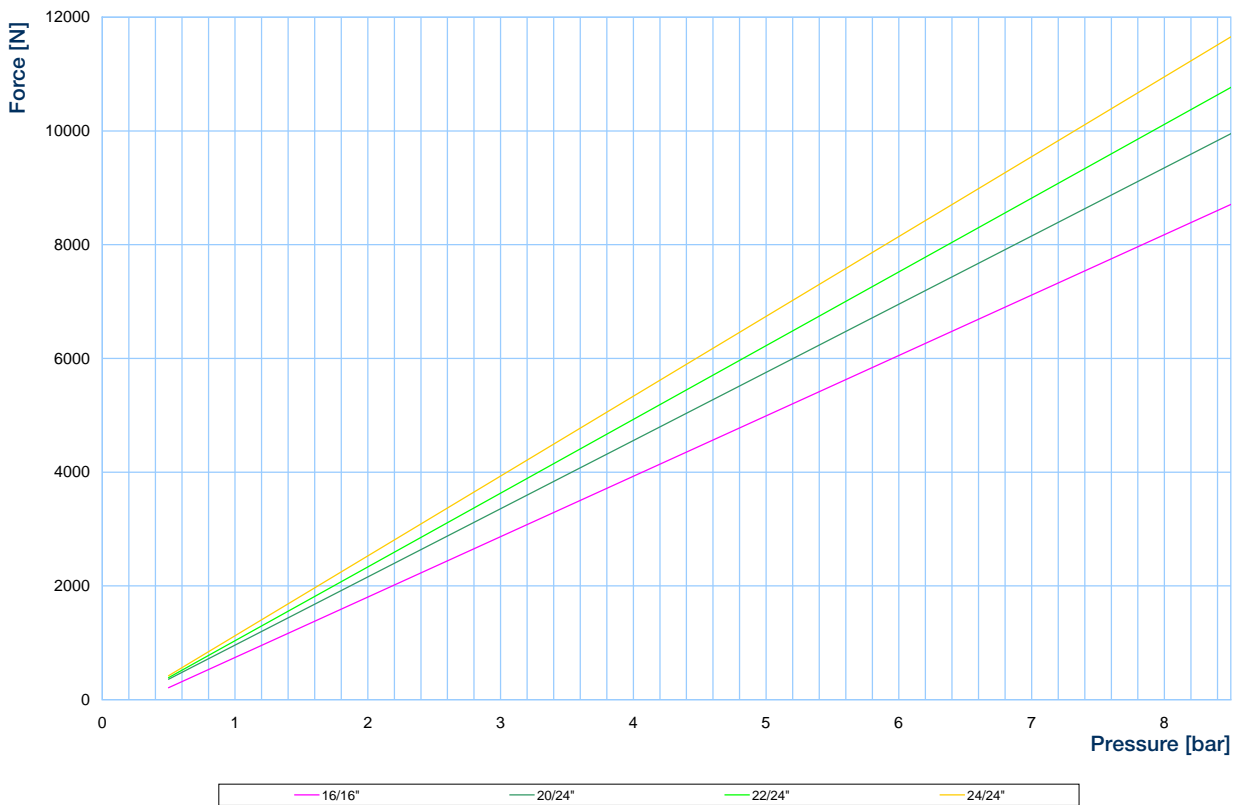
* for top trailing arm (vent rotated 180°)

*1 for ECO Air COMPACT (air connection rotated by 30 degrees)

Spring type characteristic line of diaphragm - piston cylinder 16 - 24" for disc brakes



Diaphragm - piston cylinder 16 - 24" for disc brakes



3 BPW Brake cylinder for axles with drum brakes

3.1 Diaphragm cylinders

*76.2 mm on 05.444.12.xx.x
(12" cylinder)

120.7*
Ø D1

L DL = 185 S_{max}

DLGK = 227 14.5 Ø 14

Brake cylinder kit with mounted round hole yoke
Threaded connection M 16 : 05.171.03.34.0
Threaded connection 5/8" : 05.171.03.37.0
BPW Code no.: 05.444.xx.xx.1

DLGK = 227 14.5 Ø 14

Brake cylinder kit with mounted slotted yoke
Threaded connection M 16 : 05.171.04.10.0
BPW Code no.: 05.444.xx.xx.2
(Application for manual parking brake system (FBA))

Installation dimensions BPW brake cylinder

Cylinder size	L mm	D1 mm
12"	116	122.5
16"	115	145
20"	111.5	151
24"	118.5	161
30"	121.5	183
36"	131	201

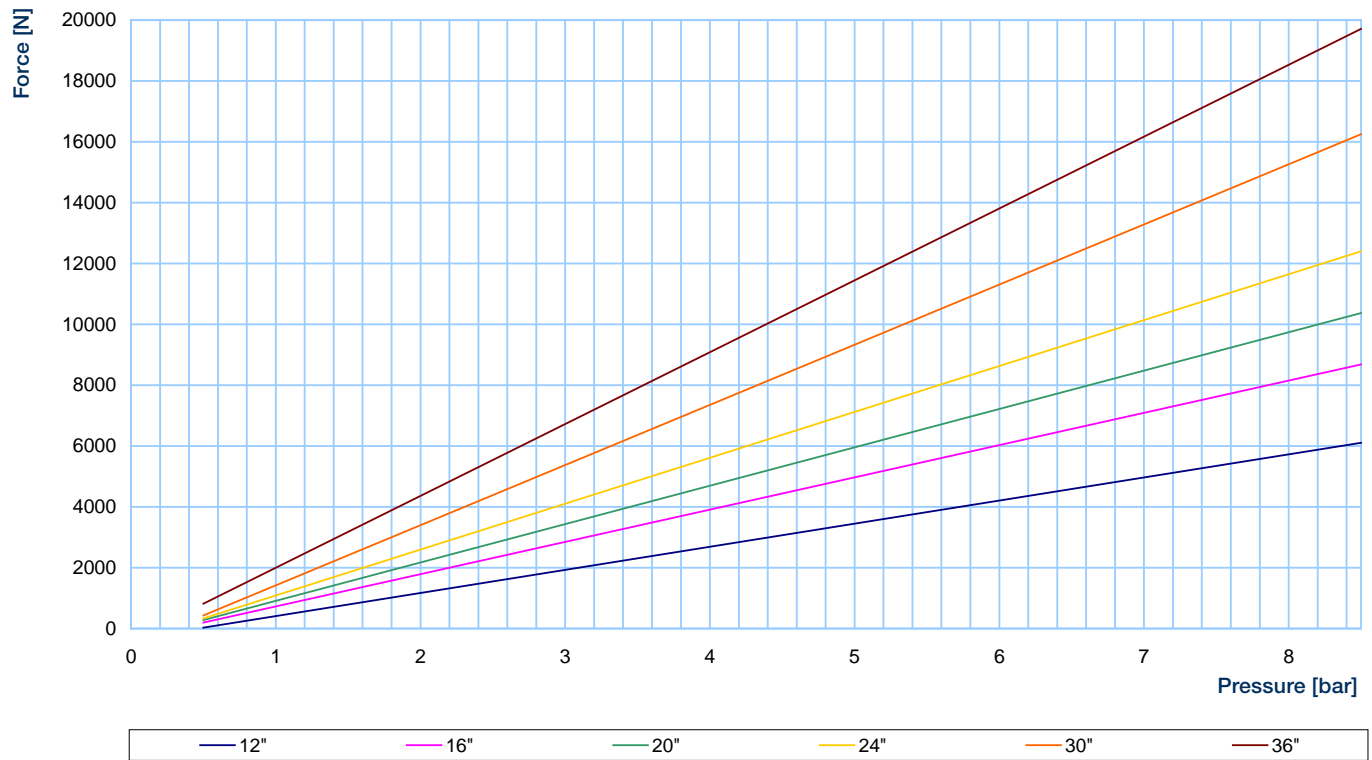
Some brake cylinders are available with shorter pushrods. Alternative versions on request.

Versions of BPW brake cylinder

Cylinder size	Version BPW brake cylinder		Test report BC 0069.1		
	BPW Code number	Threaded connection	Compressed air cylinder		
			Maximum stroke S _{max} (mm)	Average thrust Th _A (N)	Effective stroke SP (mm)
12"	05.444.12.01.0	M 12 x 1.5	78	760p - 352	1.28p + 57
16"	05.444.13.01.0	M 16 x 1.5	80	1060p - 330	1.40p + 57
20"	05.444.14.01.0	M 16 x 1.5	75	1261p - 349	0.85p + 62
24"	05.444.15.01.0	M 16 x 1.5	75	1509p - 423	0.74p + 69
30"	05.444.16.01.0	M 16 x 1.5	79	1977p - 556	0.63p + 73
36"	05.444.17.01.0	M 16 x 1.5	75	2362p - 365	0.98p + 58

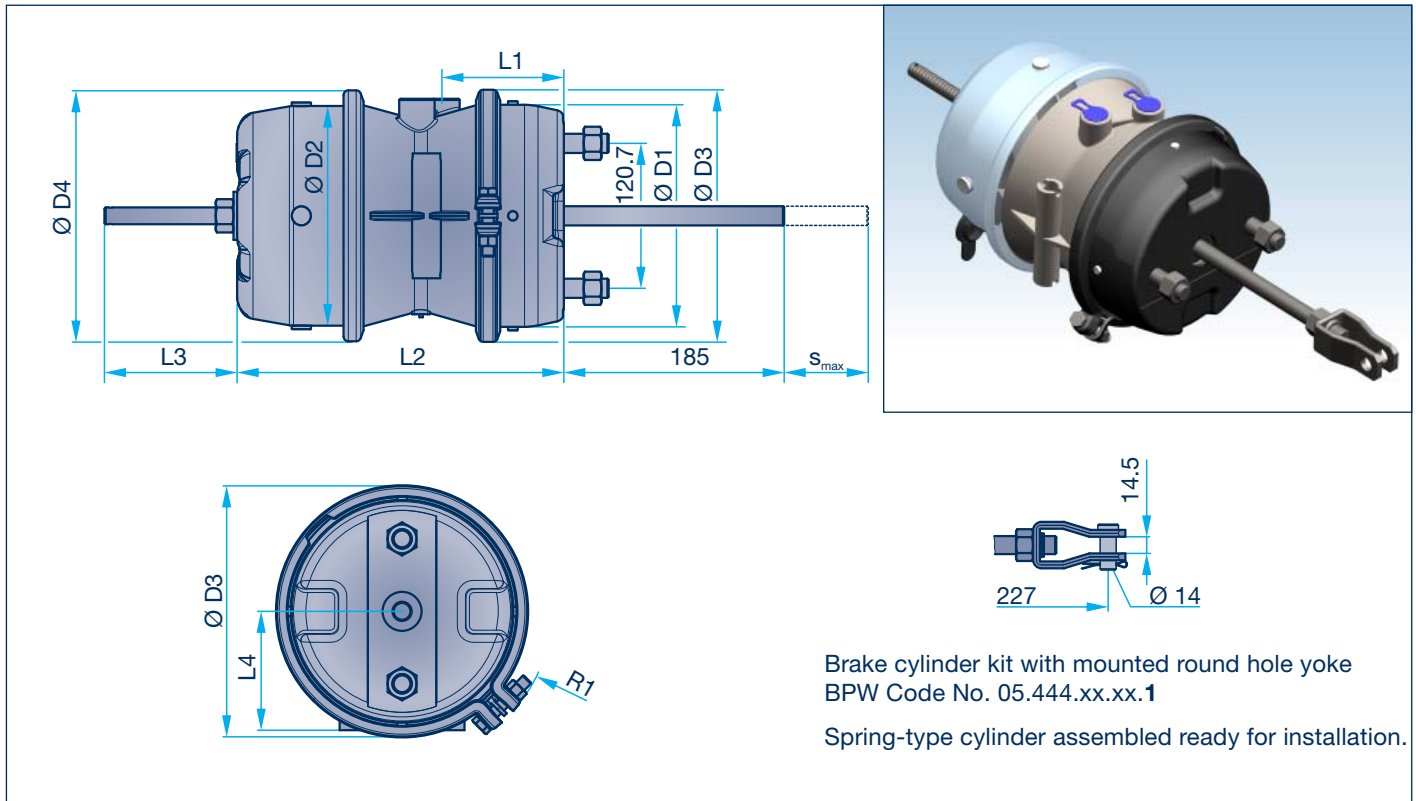
24" and 30" diaphragm cylinder with air connection 3/8" NTPF and 5/8"-18UNF available. Alternative versions on request.

Characteristic line of diaphragm cylinders 12 - 36" for drum brakes



3 BPW Brake cylinder for axles with drum brakes

3.2 Diaphragm-diaphragm (M-M) cylinders



Installation dimensions BPW brake cylinder

Cylinder size	Ø D1 mm	Ø D2 mm	Ø D3 mm	Ø D4 mm	R1 mm	L1 mm	L2 mm	L3 mm	L4 mm
16/24"	145	162	165	186	101,5	105	268	110.5	80
20/30"	163	183	186	210	112	102	274	112.5	91.5
24/30"	163	183	186	210	112	102	274	112.5	91.5
30/30"	185	183	210	212	125	102	274	112.5	98

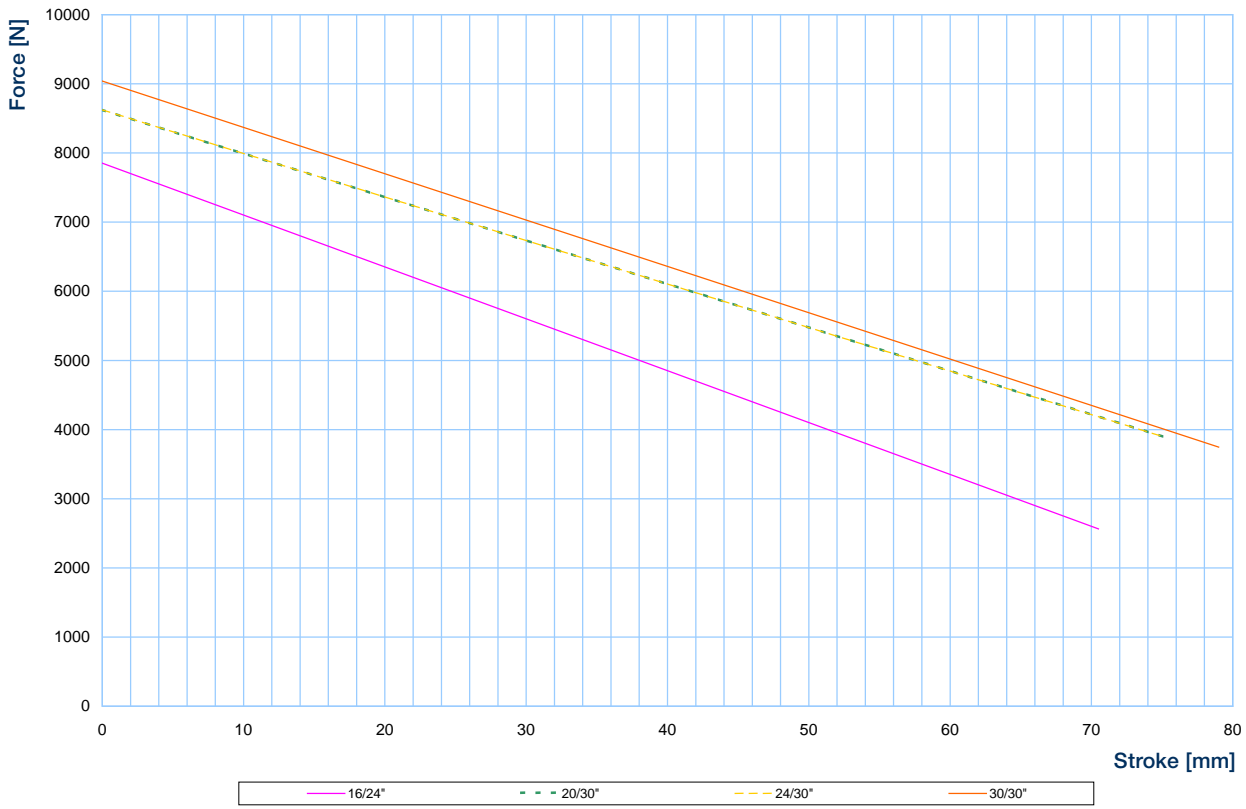
Some brake cylinders are available with shorter pushrods. Alternative versions on request.

Versions of BPW brake cylinder

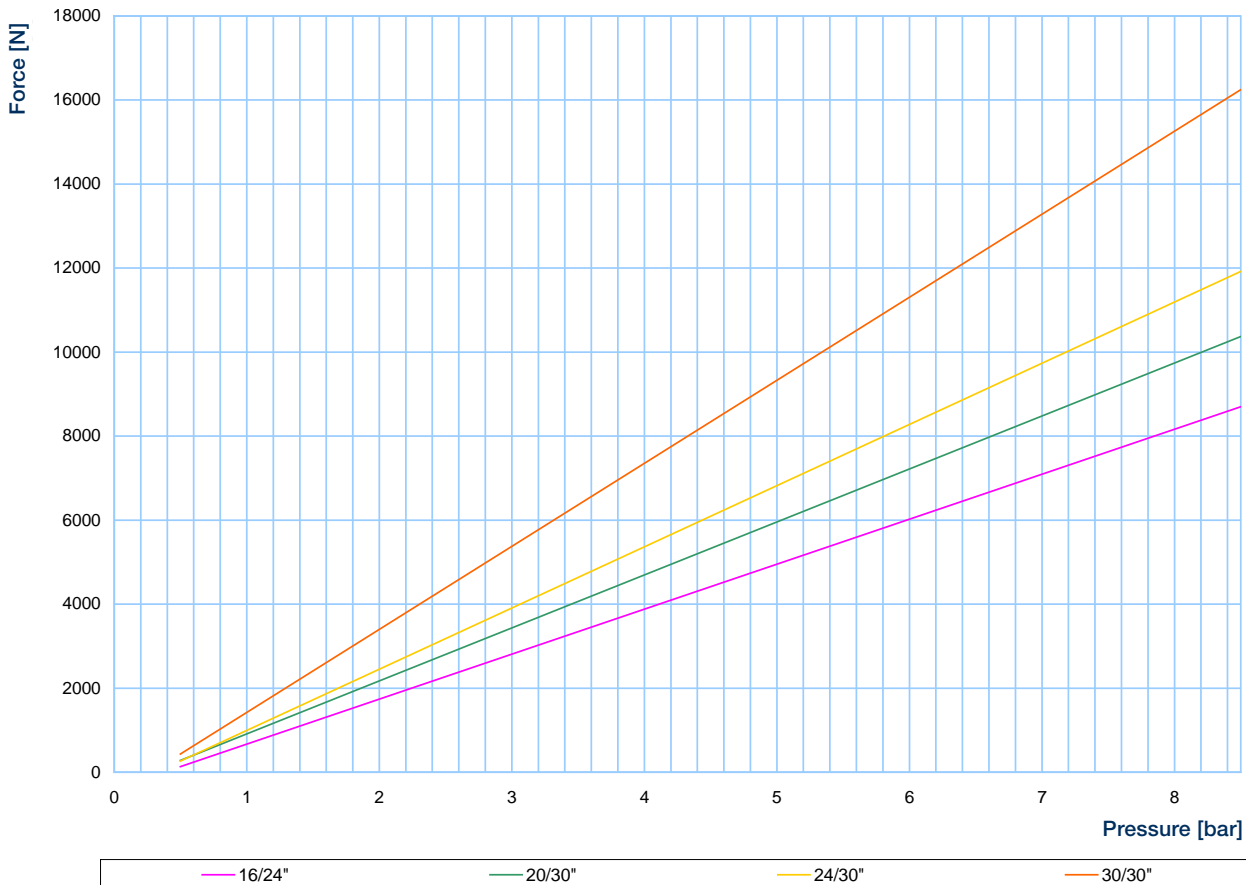
Cylinder size	Version BPW brake cylinder		Test report BC 0070.1					
	BPW Code number	Threaded connection	Compressed air cylinder			Spring-type cylinder		
			Maximum stroke S_{max} (mm)	Average thrust Th_A (N)	Effective stroke S_p (mm)	Maximum stroke S_{max} (mm)	Average thrust Th_s (N)	Release pressure P_{L10} (bar)
16/24"	05.444.18.01.0	M 16 x 1.5	74	1071p - 403	0.70p + 56	70,5	7852 - 75s	5.0
20/30"	05.444.19.01.0	M 16 x 1.5	75	1261p - 349	1.34p + 62	75	8625 - 63s	5.0
24/30"	05.444.20.01.0	M 16 x 1.5	75	1457p - 464	0.74p + 69	75	8625 - 63s	4.7
30/30"	05.444.21.01.0	M 16 x 1.5	80	1977p - 556	0.43p + 73	79	9040 - 67s	4.6

30/30" diaphragm cylinder with air connection 3/8" NPTF and 5/8"-18 UNF, as well as short-stroke version with stroke $S_{max} = 64$ mm available. Alternative versions on request..

Spring-type characteristic line of diaphragm - diaphragm cylinder 16 - 30" for drum brakes



Diaphragm - diaphragm cylinder 16 - 30" for drum brakes





BPW-BZ 39131502e

BPW is a globally leading manufacturer of intelligent running gear systems for trailers and semi-trailers. As an international mobility and system partner, we offer a wide range of solutions for the transport industry from a single source, from axle to suspension and brake to user-friendly telematics applications.

We thereby ensure outstanding transparency in loading and transport processes and facilitate efficient fleet management. Today, the well-established brand represents an international corporation with a wide product and service portfolio for the commercial vehicle industry. Offering running gear systems, telematics, lighting systems, composite solutions and trailer superstructures, BPW is the right system partner for automotive manufacturers.

BPW, the owner-operated company, consistently pursues one target: To always give you exactly the solution which will pay off. To this end, we focus our attention on uncompromising quality for high reliability and service life, weight and time-saving concepts for low operating and maintenance costs as well as personal customer service and a close-knit service network for quick and direct support. You can be sure that with your international mobility partner BPW, you always use the most efficient method.

Your partner on the path to economic viability



BPW Bergische Achsen Kommanditgesellschaft

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