BPW Agricultural Catalogue

Growing together

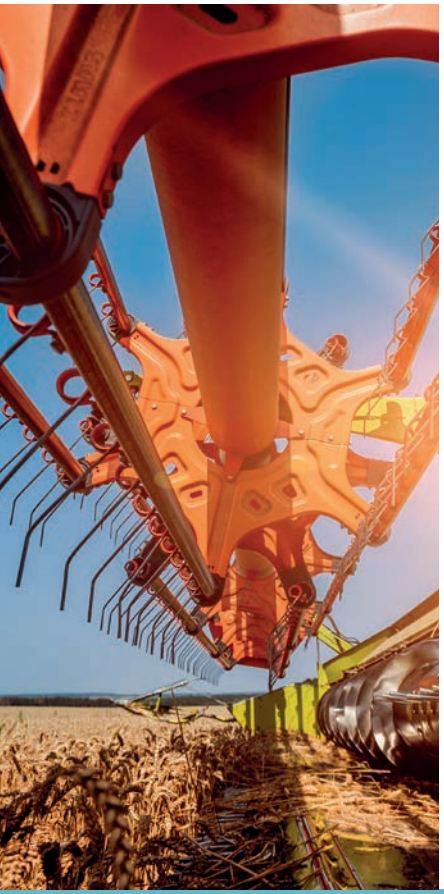
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Customised Solutions

INTRODUCTION

Agriculture is our passion

Growing together all year long

Agriculture is our passion. We know the challenges of the agricultural sector and the needs of farmers, and know: sustainability can only be achieved through hard work and innovative solutions. This is why we place our focus on the development of perfect products. We have firm belief that a goal-orientated person and a machine trimmed perfectly to its work can form a unit where nothing is impossible.

Using BPW axles, every great plan can be fully implemented.

Being a member of the German BPW Group and a part of the machinery industry of Western Hungary, we commit ourselves to reliability, quality and continuity. With the development of our products, in addition to our specialist knowledge obtained over several decades, we also include the latest technological developments and the most modern manufacturing methods. Through this, we ensure German quality as well as the use of the best and most reliable work equipment for our customers.

www.bpwagrar.com
www.bpw-hungaria.hu

Preface

» We are proud that the axles that we manufacture in our company are ranked amongst the most reliable in the world. «

Péter Mándli
Managing director
BPW-Hungária Kft.



Wherever we are in the world, our life is colourful and full of challenges. We are all looking for the best way to respond to these challenges. This applies both for our private life as well as for our work environment. The challenges cannot be defined in advance, they can be simple, but also diverse. Our everyday life is characterised by the past, which on the other hand influences our future. Throughout out entire life, we always develop new approaches for our tasks. As we can only confront challenges of the future with effective solutions.

One of the most important components of the trailer is the axle. With the manufacturing of this product, BPW has been at the forefront since more than 120 years. We are proud that the axles that we manufacture in our company are ranked amongst the most reliable in the world. Together with my colleagues, I work every day to preserve this heritage and to further develop the satisfaction of our partners.

We always strive a long-term relationship with our customers and depending on the requirements, develop customised solutions that convince by innovative ideas and prove how good we are able to think ahead.

In this catalogue, we will be presenting our newest developments. For a better overview, we have arranged the product-specific areas of application and thus the specific requirements of our customers.

I am confident that you will find all important information in this catalogue and hope to personally welcome you in the group of our satisfied customers.

With best regards

Péter Mándli
Managing Director
BPW-Hungária Kft.



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Application matrix
Customised solutions

We do not consider ourselves as supplier, we are a partner. For this reason, we already support you at an early stage in the vehicle development with our knowledge in the selection of matching components.

With many years of experience in running gear technology, BPW offers convincing solutions for all application areas when considering the demands of the customer.

Level of recommendation:

based on BPW know-how, field of application terrain conditions and efficiency

1	★
2	★★
3	★★★
4	★★★★
5	★★★★★

Figure	Vehicle
	Tippers
	Dumpers
	Push-off trailers
	Loader wagons
	Transfer vehicles
	Bale trailers
	Balers
	Manure spreaders
	Fertiliser spreaders
	Slurry tankers
	Field sprayers
	Hook-lift trailers
	Animal transporters
	Feed mixers
	Soil cultivation

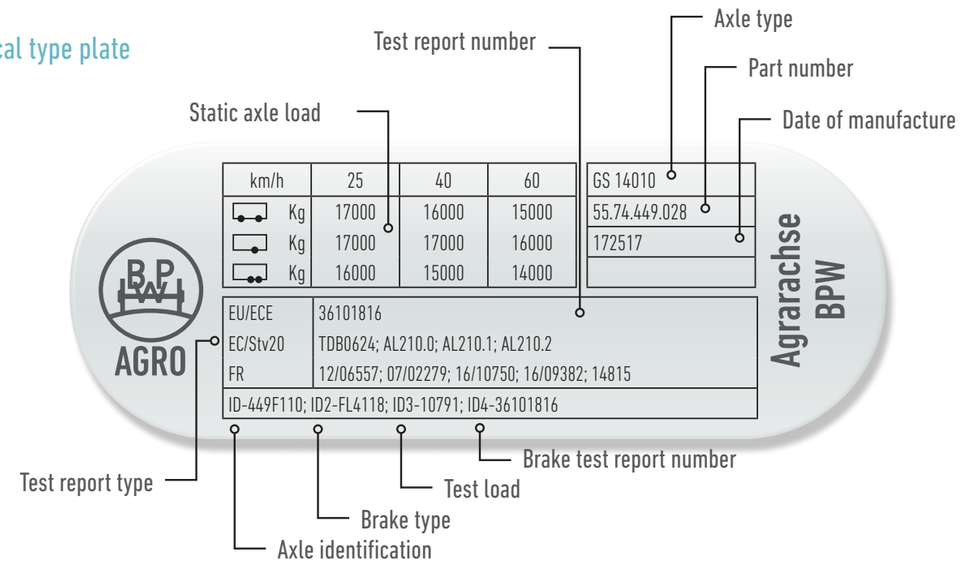
Two-axle / Tandem / Tridem					
Page 62-67	Page 82–87	Page 88–95	Page 68–73	Page 74–81	Unsprung*
Mechanical suspension	Air suspension	HP suspension	Boogie suspension	Pendle suspension	
5	4	1	–	3	5
3	–	5	4	5	–
3	4	5	2	–	1
2	4	5	3	–	5
3	4	5	–	–	5
4	5	–	–	–	–
3	–	–	5	4	5
3	5	4	5	–	5
3	–	5	4	–	5
1	4	5	3	5	5
–	5	4	–	–	3
–	4	5	–	–	–
4	–	–	–	–	5
4	–	–	–	–	5
–	–	–	–	4	5

* Unsuspended application, the level of recommendation refers to any vehicle type as single axle version.

Type designations
When data talks

Each BPW axle is provided with a type plate. As standard, it is stuck on in the middle on the axle beam - against the direction of travel. The details on the type plate allow the correct identification of the complete axle at all times - thus also the wear parts required - or the corresponding brake test report. All brake test reports can be downloaded from the BPW Agrar homepage at **www.bpwagrar.com**.

Technical type plate



Type designation, suspension units

GS	BW		:2/	12010	-1	Example
GS						GS axle (without offset)
GSN						GS axle (without offset) for 80 km/h
GSST						GS axle stub (agriculture) max. 40 km/h (without offset)
	SLO					Air suspension unit, straight trailing arm mounted on the axle
	SLU					Air suspension unit, straight trailing arm mounted under the axle
	VB					Mechanical suspension unit
	BW					Boogie suspension unit
	P					Pendle suspension unit or pendle axle stub
	OH					With hydro-pneumatic suspension
		R				With frame
		LM				Self-steering axle type LM
		LA				Single cylinder steering axle type LA
		LL				Single cylinder steering axle type LL
		L				Steering axle type L (force-steering)
		LS				Single axle stub
			:2/			Tandem axle suspension unit
			:3/			Tri-axle suspension unit
				5506-14010		Axle load and number of wheel bolts per wheel (last two numbers)
					-1	Bearing type number
					V	Mechanical suspension with torque arm

Axle type designation

G	S		LA	10010	-1	Example
G						BPW trailer axle for agricultural vehicles
GH						BPW AGRO Drive
	S					Single wheels, wheels without offset
	B					Single wheels, wheels with offset
		N				Braked axle for 80 km/h
		ST				Axle stub
			LM			Self-steering axle type LM
			LA			Self-steering axle type LA
			LL			Self-steering axle type LL
			L			Steering axle type L (force-steering)
				11010		Axle load and number of wheel bolts per wheel (last two numbers)
					-1	Bearing type number

Part number code, running gears

56	88	01	0064	Example
56				Agricultural suspension unit
	63			GS 5506, GS 5508; bearing: 32207–32013x
	67			GS 7006, GS 7008; bearing: 30310–32014x
	70			GS 8008-3, GS 8010-3; bearing: 32,213–32,215
	72			GS 12010, GSN 12010; bearing: 33,213–33,118
	74			GS 14010; bearing: 32,219–33,215
	76			GS 9008, GS 9010; bearing: 32,213–32,215
	88			GS 11008-1, GS 11010-1; bearing: 32310A–33116
		01		Air suspension unit (modules)
		03		Air suspension unit with frame
		03		Mechanical suspension unit (single axle)
		04		Mechanical suspension unit (tandem, tridem, with frame)
		05		Boogie suspension unit
		06		Pendle suspension unit
		07		Special suspension unit
		08		Hydro-pneumatic suspension unit
			0001–9999	Consecutive number

Part number code, axles

55	88	460	600	Example
26/ 36				Agricultural axle, steered
55				Agricultural axle, braked and unbraked
58				Agricultural axle stub, braked and unbraked
	53			GS 3606; bearing: 30206-30209
	56			GS 4006; bearing: 32207-30210
	63			GS 5506, GS 5508; bearing: 32207-32013x
	67			GS 7006, GS 7008; bearing: 30210-32014x
	70			GS 8008-3, GS 8010-3; bearing: 32213-32215
	72/77			GS 12010, GSN 12010; bearing: 33213-33118
	74			GS 14010; bearing: 32219-33215
	76			GS 9008, GS 9010; bearing: 32213-32215
	82/88			GS 11008-1; GS 11010-1; bearing: 32310-33116
		001		Without brake
		381		Wedge-type brake S 3006-7
		443		Cam brake N 3006-3
		454		Cam brake N 3108-3
		449		Wing cam brake FL 4118
		460		Wing cam brake FL 4112
		461		Cam brake N 4008-4
		462		Cam brake N 4012-4
		463		Cam brake N 3411-1
		744		SN cam brake SN 4220
			001–999	Consecutive number

How to select an axle
Your axle, your choice

Thanks to our modular principle, you have the option to plan the structure of the axles right from the beginning so that it is matched perfectly to your requirements.

Our coding system is based on the established BPW part number. The basic version includes the identification if one is talking about an axle, a suspension or a stub, followed by the type of the axle beam with corresponding bearing of the brake.
So that the codes themselves are comprehensive, at the end we attach the component variation for brake cylinder bracket, brake options, sensor technology, etc. instead of a consecutive number.

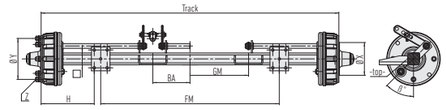
Coding – Axles
List of options for axles

Option number											
Designation	XX.XX.XXX.	1	2	3	4	5	6	7	8	9	10
	Part number example	Spring seat	Brake cylinder bracket	Brake lever	Brake compensation	CTIS	Twin tyres	SDS/ABS-Sensor	Steering angle sensor	Central lubrication system	Special seal
Running axle	55.67.001.	X	0	0	0	X	X	X	0	0	X
Solid	55.67.463.	X	X	X	X	0	0	0	0	0	0
Hollow	55.77.449.	X	X	X	0	X	X	X	0	0	0
Steering axle	36.77.449.	X	X	X	0	X	X	X	X	X	0
Reversing mechanism	55.63.381.	X	0	X	X	0	0	0	0	0	0

X = Option is possible
0 = Option is not possible

Example for coding

Braked axles
with solid axle beam

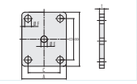


Designation	Axle cross-section (mm)	W	Static axle load (kg) 25 km/h			40 km/h			60 km/h			Brake	Wheel connection Z	Wheel connection Ø X (mm)	Wheel connection Ø Y (mm)	Type code
			*1	*2	*3	*1	*2	*3	*1	*2	*3					
Braked axles up to 3.600 kg axle load																
GS 3606	55	215	4.000	3.400	0	3.700	3.100	0	3.400	2.900	0	N 3006	6	M18 x 1.5	160	205	55.53.443-1-
Braked axles up to 4.000 kg axle load																
GS 4006	60	210	5.300	4.500	0	4.900	4.100	0	4.500	3.800	0	N 3006	6	M18 x 1.5	160	205	55.56.443-1-
GS 4006	70	330	5.300	4.500	0	4.900	4.100	0	4.500	3.800	0	N 3006	6	M18 x 1.5	160	205	55.56.443-2-
Braked axles up to 5.500 kg axle load																
GS 5506	70	250	7.000	6.000	5.500	6.500	5.500	5.000	6.000	5.000	4.500	N 3006	6	M18 x 1.5	160	205	55.63.443-1-
GS 5506	70	250	7.000	6.000	5.500	6.500	5.500	5.000	6.000	5.000	4.500	N 3108	6	M18 x 1.5	160	205	55.63.454-1-
GS 5506	80	370	7.000	6.000	5.500	6.500	5.500	5.000	6.000	5.000	4.500	N 3108	6	M18 x 1.5	160	205	55.63.454-2-
GS 5508	70	250	7.000	6.000	5.500	6.500	5.500	5.000	6.000	5.000	4.500	N 3108	8	M20 x 1.5	220	275	55.63.454-3-
GS 5508	80	370	7.000	6.000	5.500	6.500	5.500	5.000	6.000	5.000	4.500	N 3108	8	M20 x 1.5	220	275	55.63.454-4-
Braked axles up to 7.000 kg axle load																
GS 7006	80	290	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3108	6	M18 x 1.5	160	205	55.67.454-1-
GS 7006	90	410	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3108	6	M18 x 1.5	160	205	55.67.454-2-
GS 7006	80	290	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3611	6	M20 x 1.5	220	275	55.67.443-1-
GS 7006	90	410	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3611	6	M20 x 1.5	220	275	55.67.443-2-
GS 7008	80	290	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3108	8	M20 x 1.5	220	275	55.67.454-3-
GS 7008	90	410	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3108	8	M20 x 1.5	220	275	55.67.454-4-
GS 7008	80	290	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3611	8	M20 x 1.5	220	275	55.67.443-3-
GS 7008	80	290	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3611	8	M18 x 1.5	220	275	55.67.443-4-
GS 7008	90	410	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3611	8	M20 x 1.5	220	275	55.67.443-5-
GS 7008	90	410	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3611	8	M18 x 1.5	220	275	55.67.443-6-
GS 7008	120 x 80*	445	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3611	8	M18 x 1.5	220	275	55.67.443-7-
GS 7008	80	290	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 4008	8	M20 x 1.5	220	275	55.67.443-1-1-
* Hollow axle beam.																
Braked axles up to 8.000 kg axle load																
GS 8008	90	345	11.000	9.500	8.500	10.000	8.500	8.000	9.000	8.000	7.500	N 3108	8	M20 x 1.5	220	275	55.70.454-1-
GS 8008	100	475	11.000	9.500	8.500	10.000	8.500	8.000	9.000	8.000	7.500	N 3108	8	M20 x 1.5	220	275	55.70.454-2-
GS 8008	90	345	11.000	9.500	8.500	10.000	8.500	8.000	9.000	8.000	7.500	N 4008	8	M20 x 1.5	220	275	55.70.443-1-1-
GS 8008	100	475	11.000	9.500	8.500	10.000	8.500	8.000	9.000	8.000	7.500	N 4008	8	M20 x 1.5	220	275	55.70.443-1-2-
GS 8008	100	475	11.000	9.500	8.500	10.000	8.500	8.000	9.000	8.000	7.500	N 3611	8	M20 x 1.5	220	275	55.70.443-1-3-
GS 8010	90	345	11.000	9.500	8.500	10.000	8.500	8.000	9.000	8.000	7.500	N 4008	10	M22 x 1.5	280	335	55.70.443-1-3-
GS 8010	100	475	11.000	9.500	8.500	10.000	8.500	8.000	9.000	8.000	7.500	N 4008	10	M22 x 1.5	280	335	55.70.443-1-4-

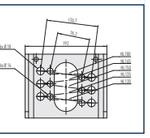
Track: 1.500–2.300 mm in 50-mm increments. Other dimensions available on request.
Spring centre / brake cylinder bracket centre on request.

List of Options

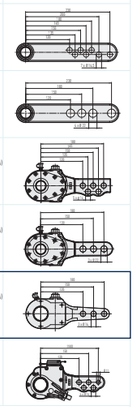
1	Spring seat										
Code	Designation									Representation / description	
0	without									–	
	Spring	Square	C	D	E	F	A	B	t	Code	
A – F	80	70	101	125	20	21	140	165	15	A	
		80	101	135	20	21	140	175	15	B	
		90	101	145	20	21	140	185	15	C	
		100	101	155	20	21	140	195	15	D	
	100	90	126	155	25	26	165	195	15	E	
		100	126	165	25	26	165	205	15	F	



2	Brake cylinder bracket	
Code	Designation	Representation / description
0	without	–
1	B = 0*	



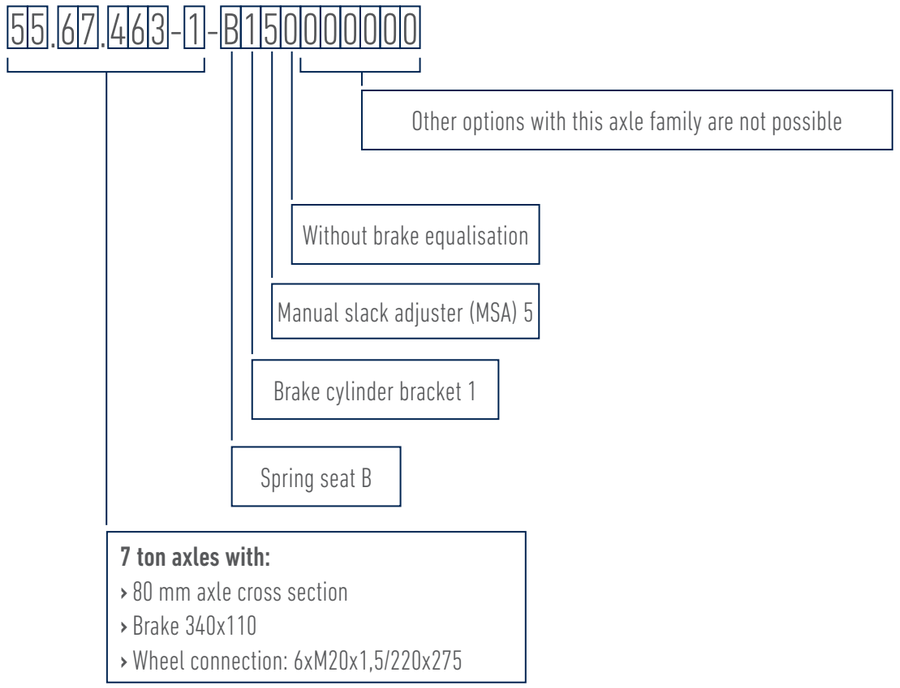
3	Brake lever	
Code	Designation	Representation / description
0	without	–
1	Lever for direct operation (two cylinder / axle)	
2	Lever for brake equaliser (one cylinder / axle)	
3	Manual slack adjuster (MSA) for direct operation (two cylinder / axle)	
4	Manual slack adjuster (MSA) for brake equaliser (one cylinder / axle)	
5	Manual slack adjuster (MSA) for direct operation* (two cylinder / axle)	
4	Automatic slack adjuster (ASA)	



* Only for brakes N 3611 – 1.

4	Brake equalisation	
Code	Designation	Representation / description
0	without	Two brake cylinders
1	Middle	One brake cylinder BA = 0
2	Offset (left)	One brake cylinder BA = 250 mm
3	Offset (right)	One brake cylinder BA = 250 mm

Other BA dimensions on request



How to select a running gear
Your suspension, your choice

The suspension is equipped with all spring options.

More decades of experience is behind the user-specific solutions which, using our modular concept, allows you to easily compose your suspension yourself.

Coding system - like the axles - is also based on the traditional BPW part number.

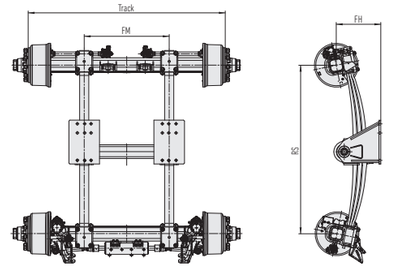
Coding – Suspension units
List of options for suspension

Designation	Part number example	Option number 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		Spring mounting / spring type	Wheelbase / lift axle / cylinder position	Hole pattern / flat frames	Ride height	Special option	Versions	Steering axle	Brake lever	Twin tyres	CTIS	SDS / ABS sensor – Rigid axle	SDS / ABS sensor – Steering axle	Steering angle sensor	Central lubrication system	Brake cylinder
Mechanical suspension unit	56.72.04	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Boogie suspension unit	56.72.05	X	X	X	X	0	X	X	X	X	X	X	X	X	X	X
Pendle suspension unit	56.72.06	0	X	X	0	X	X	X	0	X	X	X	X	X	X	X
Air suspension unit	56.72.01	X	X	X	X	0	X	X	X	X	X	X	X	X	X	X
Hydro-pneumatic suspension unit	56.72.08	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

X = Option is possible
0 = Option is not possible

Example for coding

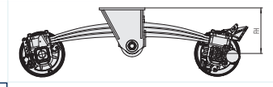
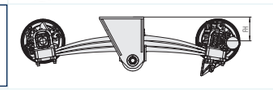
Boogie suspension unit



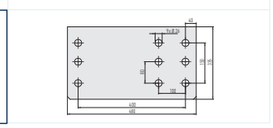
Axle type	Axle cross-section Front axle (mm)	Axle cross-section Rear axle (mm)	Static suspension unit load (kg) 40 km/h	40 km/h	Brake	Wheel connection	Type code
GSBW (LA) 7006/7008*							
GSBW 7006	90	90	13.000	12.000	unbraked	6 x M18 x 1.5 – 160/205	56.67.05-1-
GSBW 7006	90	90	13.000	12.000	N 3411	6 x M18 x 1.5 – 160/205	56.67.05-2-
GSBW 7008	90	90	13.000	12.000	unbraked	8 x M20 x 1.5 – 220/275	56.67.05-3-
GSBW 7008	90	90	13.000	12.000	N 3411	8 x M20 x 1.5 – 220/275	56.67.05-4-
GSBW (LA) 9008/9010*							
GSBW 9008	110 x 14	110 x 14	17.000	16.000	unbraked	8 x M20 x 1.5 – 220/275	56.76.05-1-
GSBW 9008	110 x 14	110 x 14	17.000	16.000	N 3411-1	8 x M20 x 1.5 – 220/275	56.76.05-2-
GSBW 9008	110 x 14	110 x 14	17.000	16.000	N 4012-4	8 x M20 x 1.5 – 220/275	56.76.05-3-
GSBW 9010	110 x 14	110 x 14	17.000	16.000	unbraked	10 x M22 x 1.5 – 280/335	56.76.05-4-
GSBW 9010	110 x 14	110 x 14	17.000	16.000	N 4012-4	10 x M22 x 1.5 – 280/335	56.76.05-6-
GSBW (LA) 11008/11010							
GSBW 11008	120 x 10(15)	120 x 10(15)	20.000	18.000	unbraked	8 x M20 x 1.5 – 220/275	56.88.05-1-
GSBW 11008	120 x 10(15)	120 x 10(15)	20.000	18.000	N 4012	8 x M20 x 1.5 – 220/275	56.88.05-2-
GSBW 11008	120 x 10(15)	120 x 10(15)	20.000	18.000	FL 4112	8 x M20 x 1.5 – 220/275	56.88.05-3-
GSBW 11010	120 x 10(15)	120 x 10(15)	20.000	18.000	unbraked	10 x M22 x 1.5 – 280/335	56.88.05-4-
GSBW 11010	120 x 10(15)	120 x 10(15)	20.000	18.000	N 4012	10 x M22 x 1.5 – 280/335	56.88.05-5-
GSBW 11010	120 x 10(15)	120 x 10(15)	20.000	18.000	FL 4112	10 x M22 x 1.5 – 280/335	56.88.05-6-
GSBW 11010	120 x 10(15)	120 x 10(15)	20.000	18.000	FL 4118	10 x M22 x 1.5 – 280/335	56.88.05-7-
GSBW 12010							
GSBW 12010	150 x 10(16)	150 x 10(16)	26.000	24.000	unbraked	10 x M22 x 1.5 – 280/335	56.72.05-1-
GSBW 12010	150 x 10(16)	150 x 10(16)	26.000	24.000	FL 4118	10 x M22 x 1.5 – 280/335	56.72.05-2-

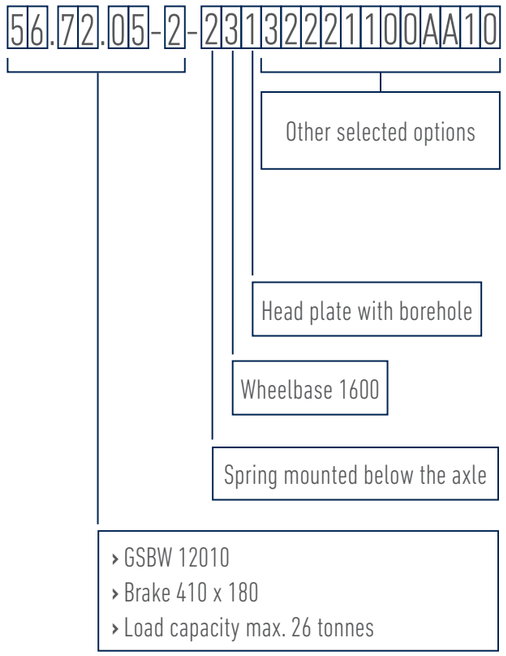
* The list of options does not apply for these versions. Variants available on request.
Track widths, spring centres on request.
Axle loads dependent on the ratio track / spring centre and the tyres.
26 tonnes (Heavy-Duty version) is only possible with reinforced support and spring (HD) and with steering axle.

List of Options

1	Spring mounting kit	
Code	Designation	Representation / description
1	FO spring mounted upon the axle	
2	FU spring mounted below the axle	

2	RS – Wheel base (mm)	
Code	Designation	Representation / description
1	1.450	–
2	1.540	Available up to a load of 20 tonnes
3	1.600	–
4	1.900	–

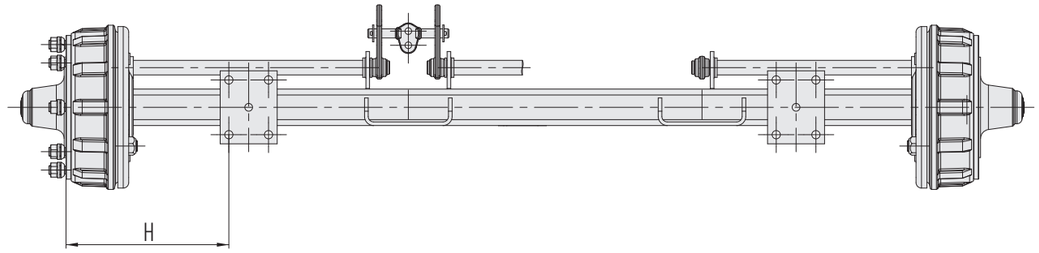
3	Head plate – Hole pattern	
Code	Designation	Representation / description
0	without drilled holes	
1	with drilled holes	



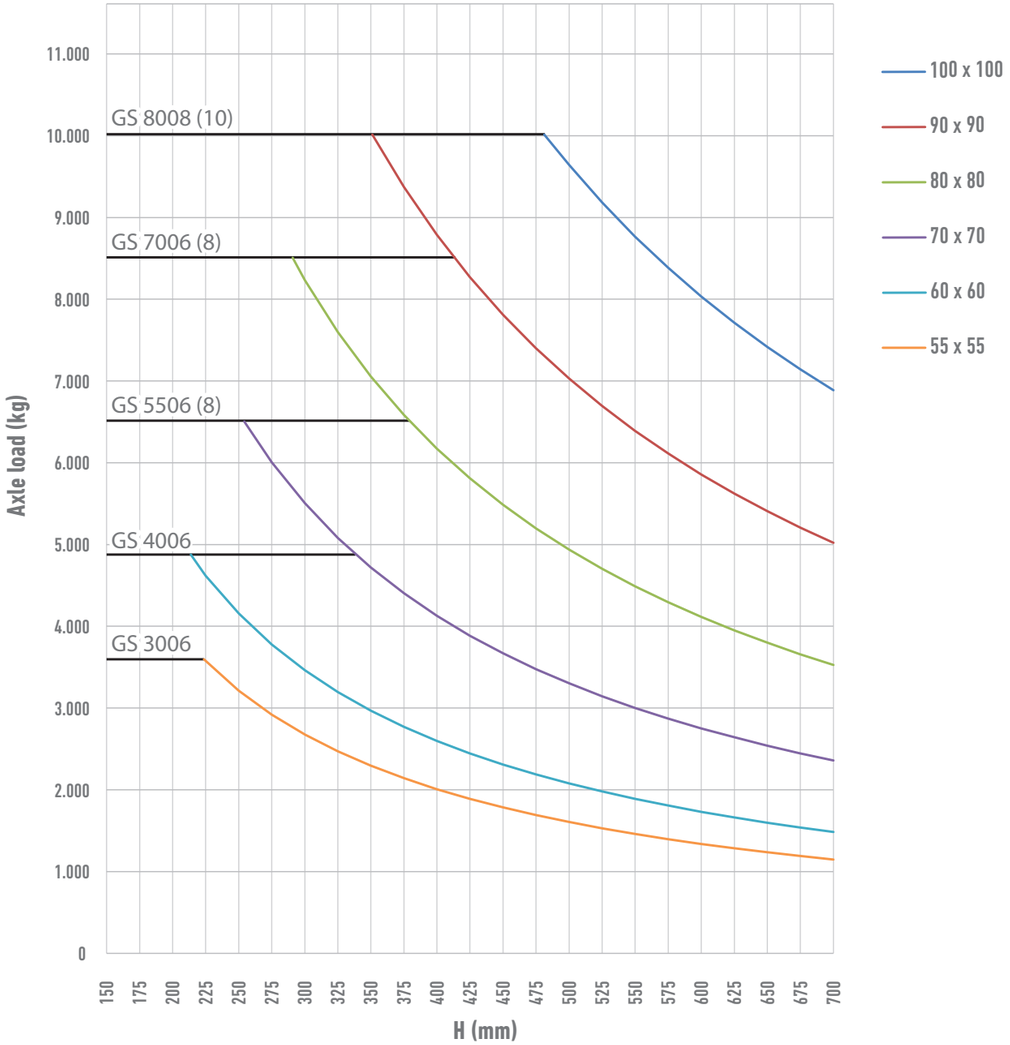
Axle load diagrams
for solid and hollow axle beams

Permissible static axle loads

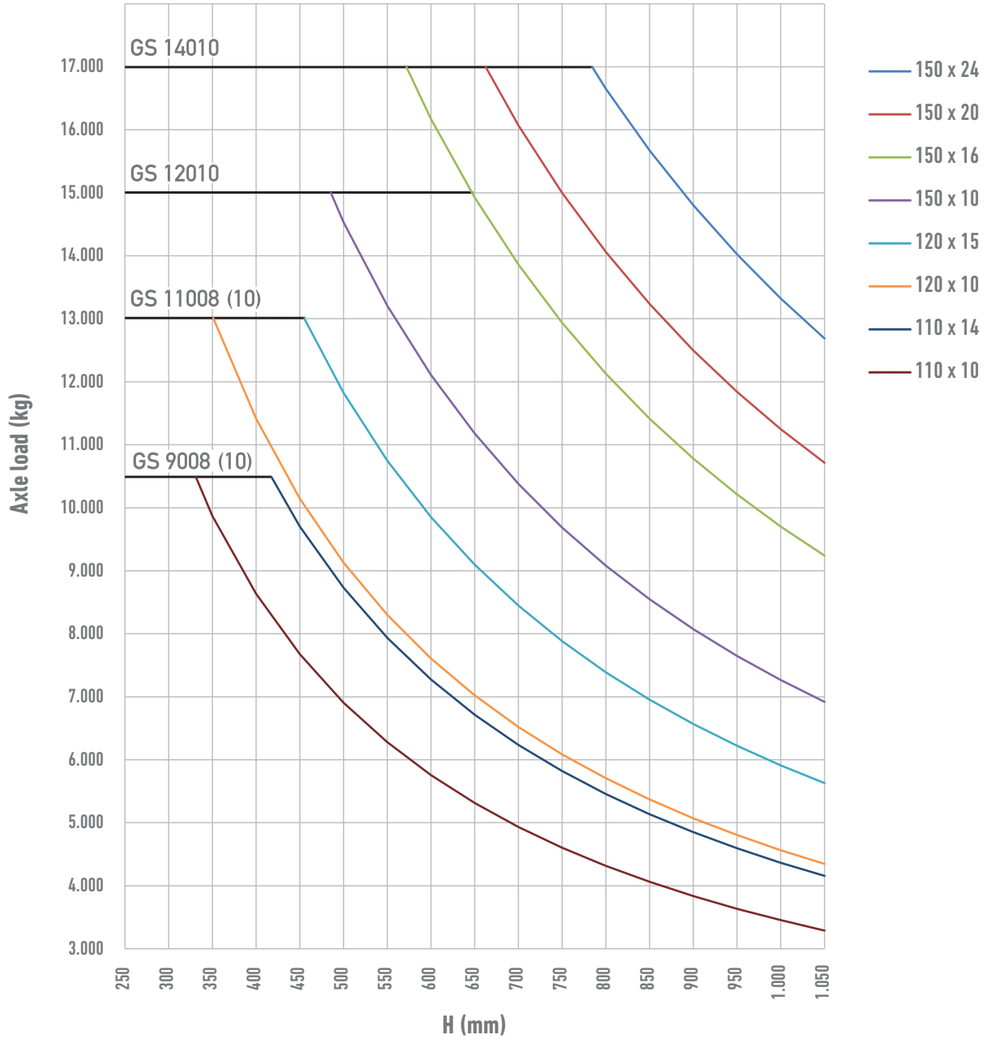
40 km/h



Solid axle beam



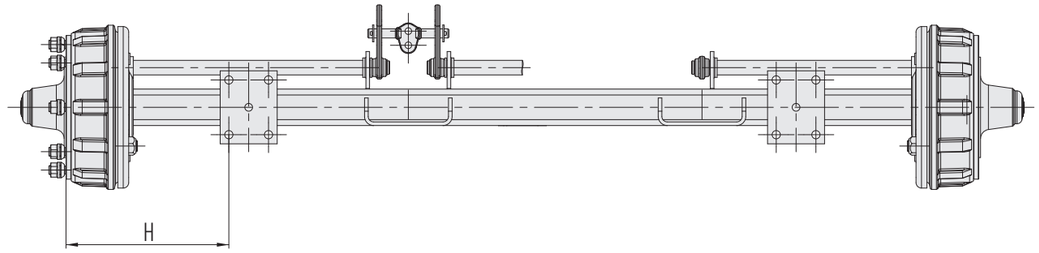
Hollow axle beam



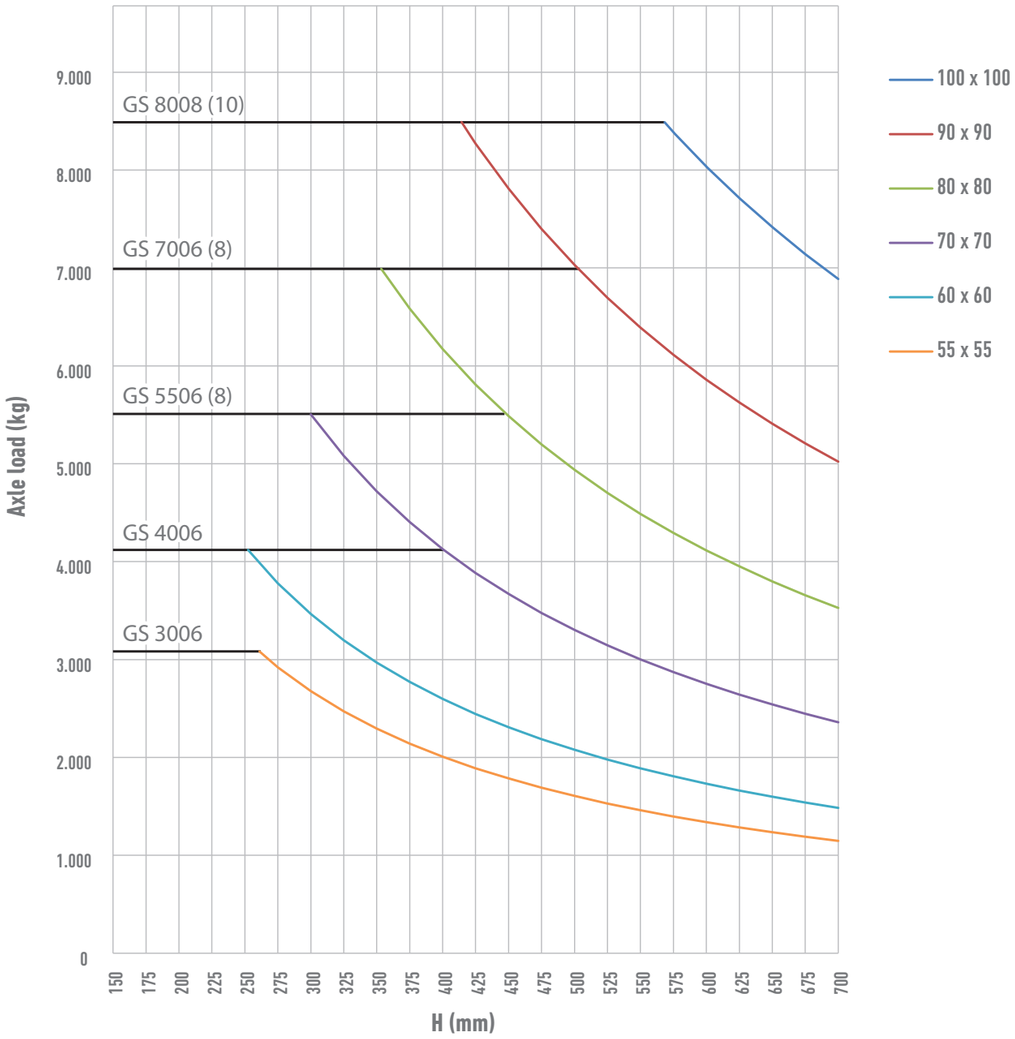
Axle load diagrams
for solid and hollow axle beams

Permissible static axle loads

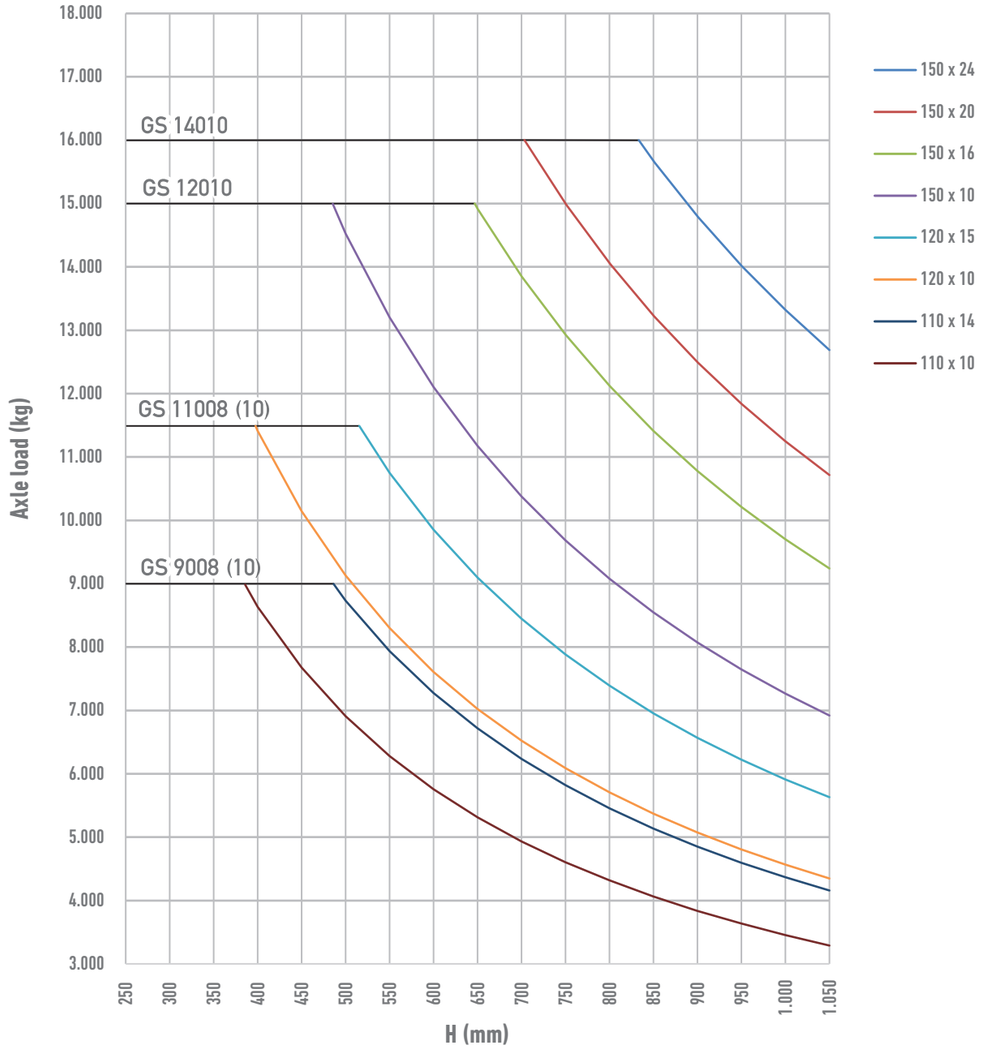
40 km/h



Solid axle beam



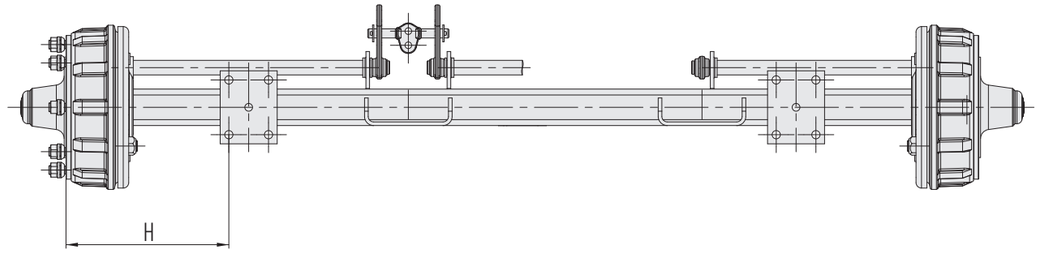
Hollow axle beam



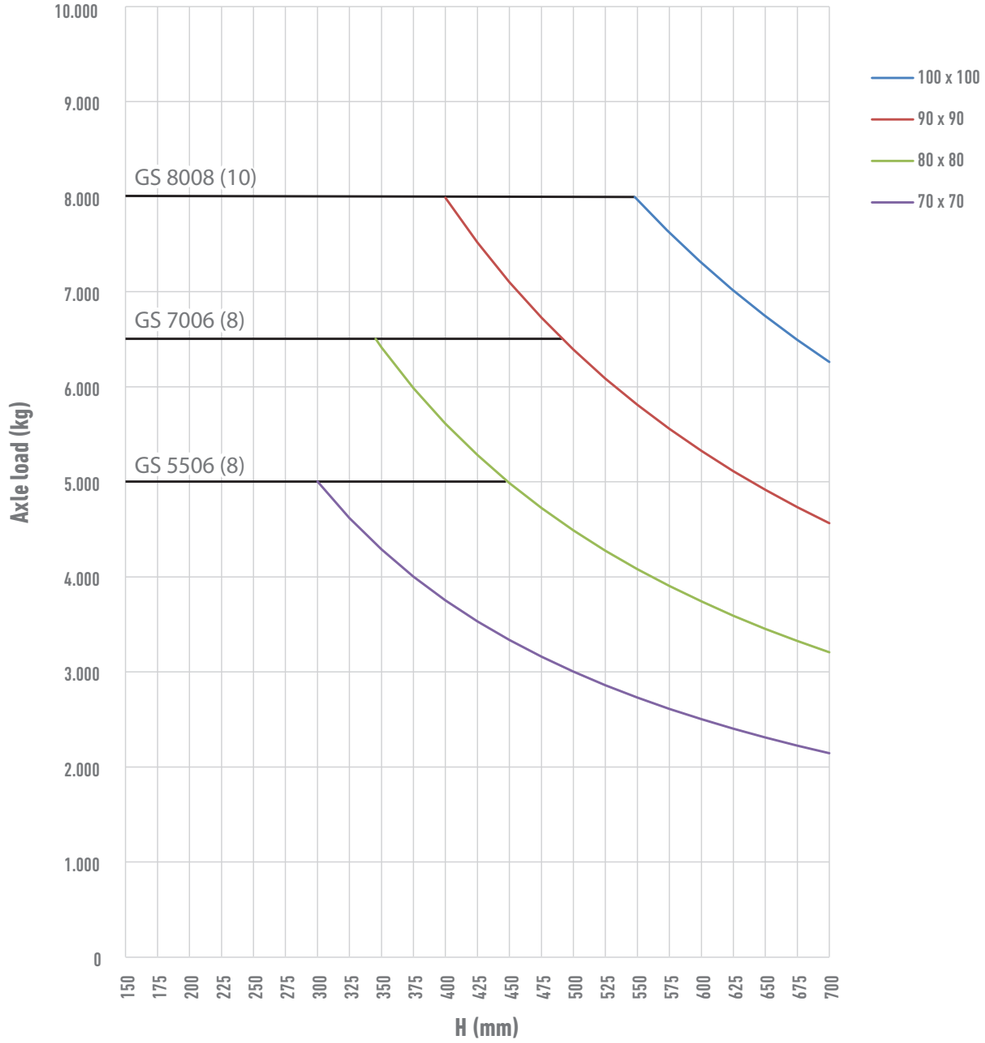
Axle load diagrams
for solid and hollow axle beams

Permissible static axle loads

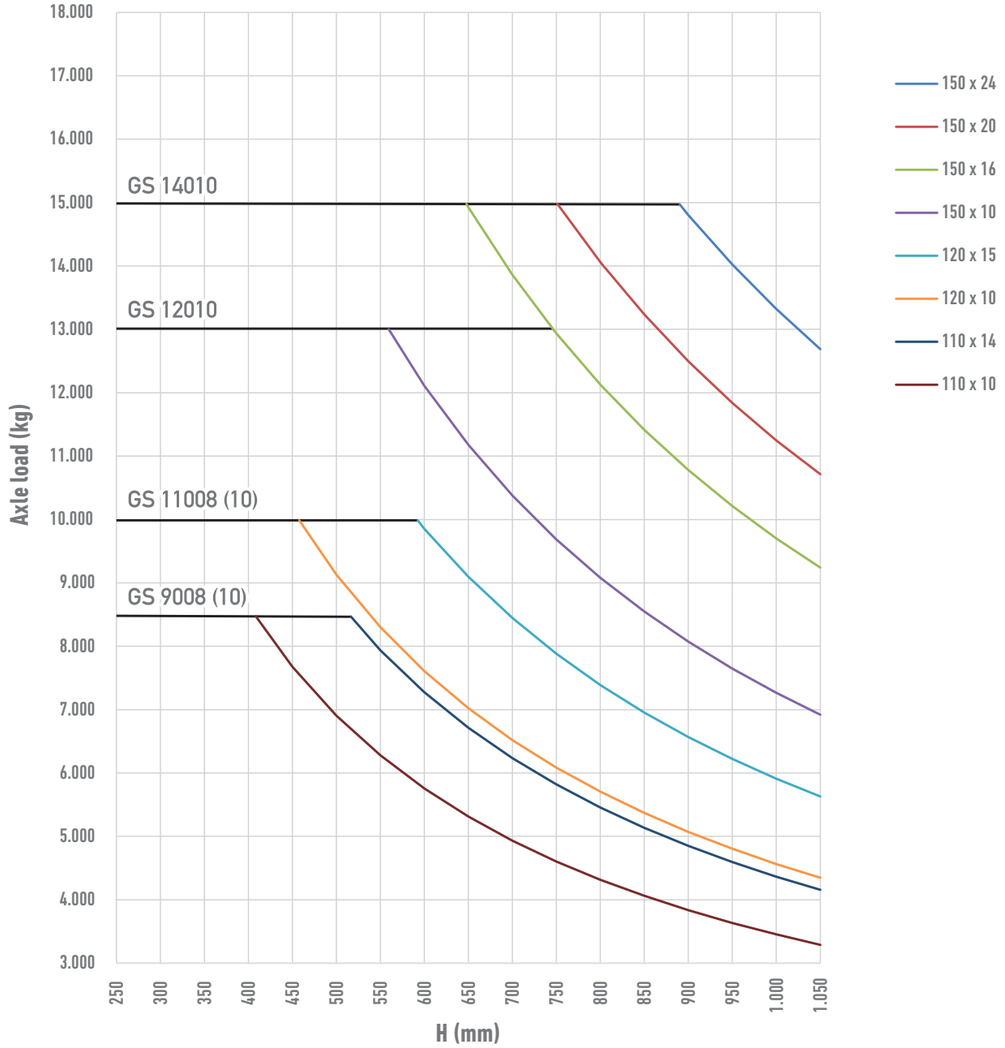
40 km/h



Solid axle beam



Hollow axle beam



Brakes

Proven under the toughest conditions

BPW offers the matching brakes for every application. Brakes developed and tested in our test laboratory guarantee a constant braking effect and sort response time for towed vehicles.
Being in line with the specifications of EU 2015/68, ECE, EG, StVZO or special regulations for France – BPW offers the respective experts reports and test reports for all brake versions.

Brake properties

Type of the wheel brake	Brake size (mm)	Rim diameter	Drum outer width	Reachable lever
N 3006-3	300 x 60	15"	332	H – G – A
N 3108-3	310 x 80	15"	360	H – G – A
N 3411	340 x 110	17"	390	G – A
N 4008-4	400 x 80	19,5"	440	H – G
N 4012-4	400 x 120	19,5"	456	G – A
FL 4112	410 x 120	20,5" (20"*)	473	G – A
FL 4118	410 x 180	20,5" (20"*)	478	G – A
SN 4220	420 x 200	20,5" (20"*)	480	G – A

H = simple lever
G = GSK (manual slack adjuster)
A = AGS (automatic slack adjuster)
* Must be checked.

EU/ECE test reports

Brake type ID2	Brake size (mm)	Axle type ID1	Test axle load		„Test report number Main part ID4"	Dyn. radius [mm]		Type
			ID3 [daN]	[kg]		Checked	Permissible >=	
N 3006-3	300 x 60	443F40	3.924	4.000	B11922A	408	326,4	(EU) 2015/68
N 3108-3	310 x 80	454F50	4.905	5.000	B11921A	438	350,4	(EU) 2015/68
			5.886	6.000				
N 3411	340 x 110	463F85	8.339	8.500	B11912A	410	328	(EU) 2015/68
N 4008-4	400 x 80	461F70	6.867	7.000	B11898A	475	380	(EU) 2015/68
			7.848	8.000				
N 4008-4	400 x 80	GS 70	6.867	7.000	TDB 0833	503	402,4	ECE R 13
N 4012-4	400 x 120	462F90	8.829	9.000	B11419A	552	441,6	(EU) 2015/68
			10.300	10.500		475	380	
FL 4112	410 x 120	GS90	9.810	10.000	36110415	519	415,2	(EU) 2015/68
FL 4118	410 x 180	449F110	10.791	11.000	36101816	527	421,6	(EU) 2015/68
FL 4118BB	410 x 180	464F120	11.772	12.000	36105217	527	421,6	(EU) 2015/68
SN 4220	420 x 200	H 142	13.930	14.200	TDB 0137	543	434,4	ECE
S 3006-7 Wedge-type brake	300 x 60	Test report no.: 36102717; permissible "maximum weight" per axle: 4.000 kg						

EG test reports for v ≥ 25 km/h

Type of the wheel brake	Brake size (mm)	Test load (kg)	Permissible axle load (kg)	Tested tyre version		Dyn. radius (mm)		Test report number	Type
						Checked	Permissible >=		
N 3006-3	300 x 60	3.800	3.800	205 R 14 C	Twin	332	265,6	TDB 0403	EG
				8,5 R 17,5	Single	388	310,4	TDB 0410	
N 3108-3	310 x 80	6.000	6.000	7,5 R 15	Single	371	296,4	TDB 0364	EG
				8,25 R 20	Single	471	376,8		
N 4008-4	400 x 80	7.000	7.000	14/80 R20	Single	543	434,4	TDB 0833	EG
FL 4112	410 x 120	10.000	10.000	14,5 R 20	Single	527	421,6	TDB 0680	EG
FL 4118	410 x 180	11.000	11.000	385/65 R 22,5	Single	519	415,2	TDB 0624	EG
				700/50 R 22,5	Single	594	475,2		
				500/75 R 24	Single	653	522,4		

Certificate according to the German Road Traffic Act (StVZO) for v ≤ 25/40 km/h

Type of the wheel brake	Brake size (mm)	Test load (kg)	Permissible axle load (kg)	Permissible speed (km/h)		Tyre rolling radius (mm)		Test report number
						Min.	Max.*	
N 3006-3	300 x 60	6.000	6.000	v <= 25	-	330	450	AL 180.0
N 3108-3	310 x 80	8.000	8.000	v <= 25	-	330	630	AL 192.0
N 4008-4	400 x 80	8.000	8.000	v <= 25	-	380	631	AL 318.1
FL 4112	410 x 120	8.000	8.000	v <= 25	-	650	950	AL 224.0
		13.000	13.000	v <= 25	-	420	650	AL 224.1
		10.500	10.500	-	v <= 40	420	650	AL 224.2
FL 4118	410 x 180	15.000	15.000	v <= 25	-	420	800	AL 210.0
		12.000	12.000	-	v <= 40	590	800	AL 210.1
		13.500	13.500	-	v <= 40	420	650	AL 210.2

* Other tyre rolling radii are possible after mathematical checks.

Test reports according to France for v ≤ 40 km/h

Type of the wheel brake	Brake size (mm)	Test load (kg)	Permissible axle load (kg)	Tested tyre version	External diameter (mm)		Actuator	Test report number
					Checked	Permissible >=		
N 3006-3	300 x 60	3.800	3.800	12,5/80–15,3	897	718	Compressed air	07/02276
							Hydraulics	07/10272
N 3108-3	310 x 80	6.000	6.000	12,5/80–15,3	897	718	Compressed air	07/02277
							Hydraulics	07/10273
N 4008-4	400 x 80	7.000	7.000	600/50–22,5	1.172	938	Compressed air	07/06745
							Hydraulics	08/06746
FL 4112	410 x 120	10.500	10.500	600/50–22,5	1.172	938	Compressed air	07/02281
							Hydraulics	07/02282
FL 4118	410 x 180	12.000	12.000	600/50–22,5	1.172	938	Compressed air	07/02279
							Hydraulics	07/02280
		13.000	13.000	600/50–22,5	1.172	937,6	Compressed air	12/06557
FL 4112	410 x 120	11.200	11.200	600/50–22,5	1.172	937,6	Compressed air	15/08938

Test report according to France for v ≤ 25 km/h

Type of the wheel brake	Brake size (mm)	Test load (kg)	Permissible axle load (kg)	Tyre rolling radius (mm)		Test report number
				Min.	Max.	
N 3006-3	300 x 60	6.000	6.000	330	450	13124
		8.000	8.000	320	450	14762
N 3108-3	310 x 80	8.000	8.000	330	630	12436
N 4008-4	400 x 80	8.000	12.000	380	890	15735
N 4008-4	400 x 80	14.000	14.000	360	910	17/03930
FL 4112	410 x 120	13.000	13.000	420	650	12713
				420	970	12870
FL 4112	410 x 120	17.000	17.000	360	910	16/09381
FL 4118	410 x 180	15.000	15.000	420	800	12765
				420	970	14815
FL 4118	410 x 180	17.000	17.000	360	970	16/09382
						16/10750

Wheel brake for trailers with overrun brake

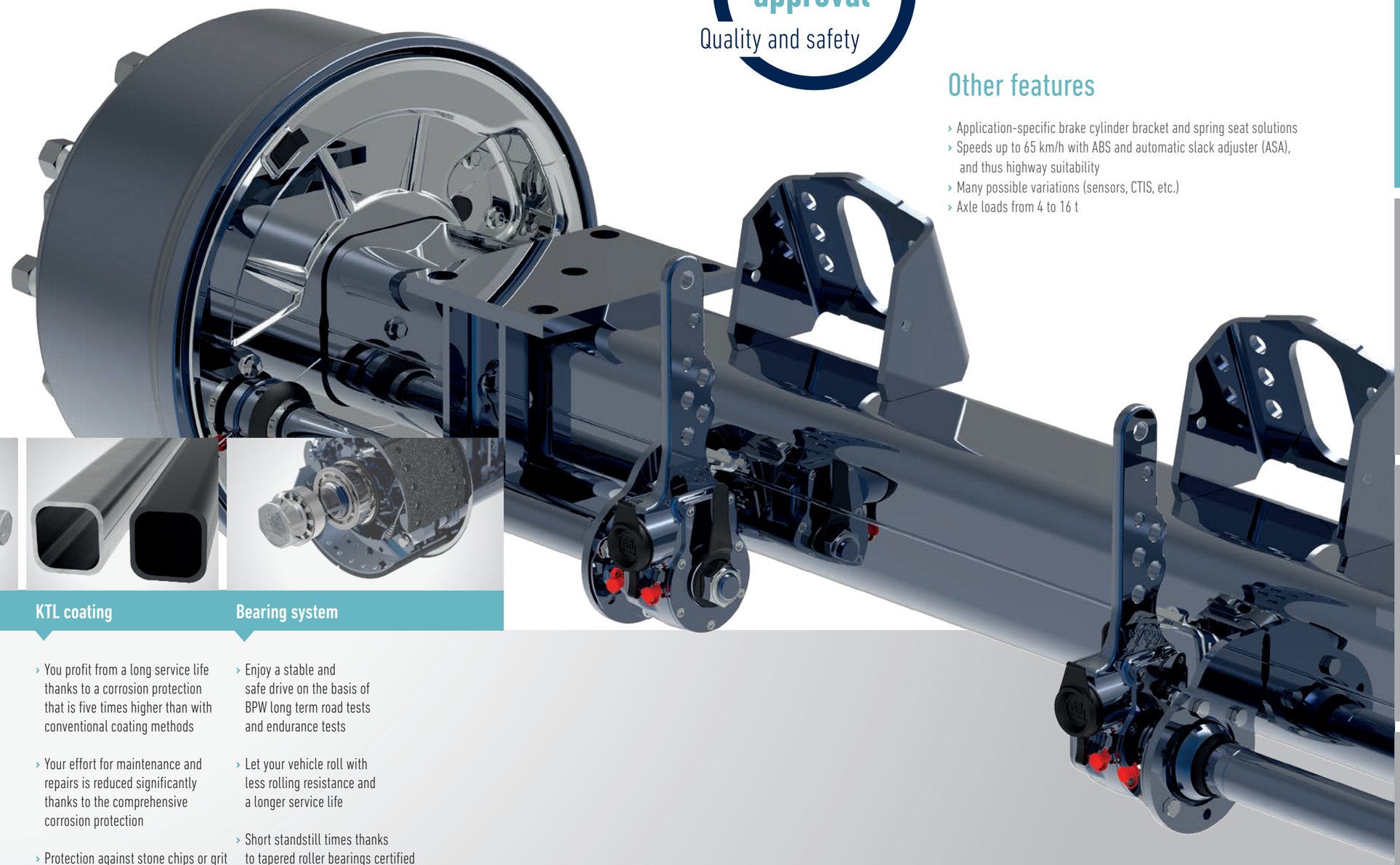
Type of the wheel brake	Wheel brake size (mm)	Version	Test load PE per wheel brake (kg)			Tyre rolling radius (mm)		Test report number
			Up to 25 km/h	Up to 40 km/h	Up to 60 km/h	Min.	Max.	
S 3006-7	300 x 60	Reversing mechanism with cable tubes	3.000	2.000	-	330	480	F 1330
S 3006-7	300 x 60	Reversing mechanism with cable tubes	-	-	1.500	310	440	F 1330
S 3006-7	300 x 60	Reversing mechanism with brake linkage	3.000	2.000	-	330	480	F 1331
S 3006-7	300 x 60	Reversing mechanism with brake linkage	-	-	1.500	310	440	F 1331
S 3006-7	300 x 60	-	-	-	-	-	-	-

AXLES

Braked axles
Safety in the foreground

With a variety of axle loads and different brakes, BPW axles cover all possible applications.
Depending on the vehicle type, application and speed, they are dimensioned for up to 80 km/h.

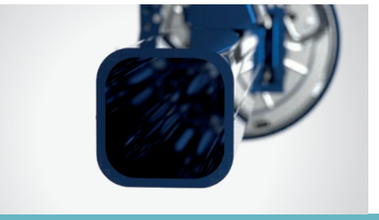
EU-2015/68-approval
Quality and safety



Other features

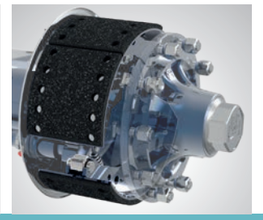
- Application-specific brake cylinder bracket and spring seat solutions
- Speeds up to 65 km/h with ABS and automatic slack adjuster (ASA), and thus highway suitability
- Many possible variations (sensors, CTIS, etc.)
- Axle loads from 4 to 16 t

Benefits that convince



Hollow axle beam

- The highest reliability thanks to reinforced axle cross-section
- Offers your vehicles high stability
- Large safety reserves in case of temporary and extreme overloading



Brakes

- BPW brakes, approved in accordance with EU 2015/68
- Constant braking effect and thus more safety in practice
- Precisely calibrated pads according to size and shape
- Reduced wear for low lifecycle costs

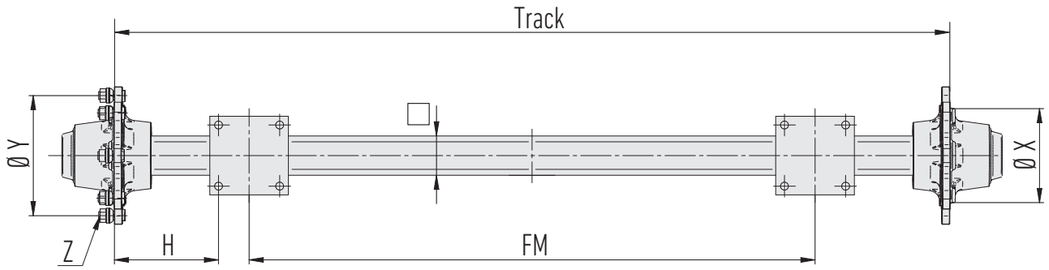
KTL coating

- You profit from a long service life thanks to a corrosion protection that is five times higher than with conventional coating methods
- Your effort for maintenance and repairs is reduced significantly thanks to the comprehensive corrosion protection
- Protection against stone chips or grit
- Longer service life of the entire BPW running gear

Bearing system

- Enjoy a stable and safe drive on the basis of BPW long term road tests and endurance tests
- Let your vehicle roll with less rolling resistance and a longer service life
- Short standstill times thanks to tapered roller bearings certified in accordance with DIN and ISO, and exchangeable sealing elements available worldwide

Unbraked axles
with solid and hollow axle beam

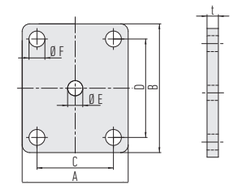


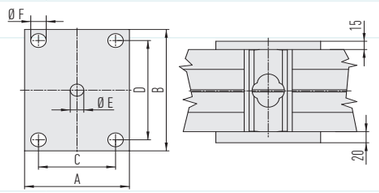
Designation	Axle cross-section (mm)	H (mm)	Static axle load (kg)									Wheel connection			Type code
			25 km/h			40 km/h			60 km/h			Z	Ø X (mm)	Ø Y (mm)	
Unbraked axles up to 3.600 kg axle load with bearing 30206/30209															
GS 3606	55	215	4.000	3.400	0	3.700	3.100	0	3.400	2.900	0	6	M18 x 1,5	160	205	55.53.001-1-
Unbraked axles up to 4.000 kg axle load with bearing 32207/30210															
GS 4006	60	210	5.300	4.500	0	4.900	4.100	0	4.500	3.800	0	6	M18 x 1,5	160	205	55.56.001-1-
Unbraked axles up to 5.500 kg axle load with bearing 32207/32013x															
GS 5506	70	250	7.000	6.000	5.500	6.500	5.500	5.000	6.000	5.000	4.500	6	M18 x 1,5	160	205	55.63.001-1-
GS 5506	80	370	7.000	6.000	5.500	6.500	5.500	5.000	6.500	5.000	4.500	6	M18 x 1,5	160	205	55.63.001-2-
GS 5508	70	250	7.000	6.000	5.500	6.500	5.500	5.000	6.500	5.000	4.500	8	M20 x 1,5	220	275	55.63.001-3-
GS 5508	80	370	7.000	6.000	5.500	6.500	5.500	5.000	6.500	5.000	4.500	8	M20 x 1,5	220	275	55.63.001-4-
Unbraked axles up to 7.000 kg axle load with bearing 30210/32014x															
GS 7006	80	290	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	6	M18 x 1,5	160	205	55.67.001-1-
GS 7006	90	410	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	6	M18 x 1,5	160	205	55.67.001-2-
GS 7008	80	290	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	8	M20 x 1,5	220	275	55.67.001-3-
GS 7008	90	410	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	8	M20 x 1,5	220	275	55.67.001-4-
GS 7008	120 x 15	645	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	8	M18 x 1,5	220	275	55.67.001-5-
Unbraked axles up to 8.000 kg axle load with bearing 32213/32215															
GS 8008	90	345	11.000	9.500	8.500	10.000	8.500	8.000	9.000	8.000	7.500	8	M20 x 1,5	220	275	55.70.001-1-
GS 8008	100	475	11.000	9.500	8.500	10.000	8.500	8.000	9.000	8.000	7.500	8	M20 x 1,5	220	275	55.70.001-2-
GS 8010	90	345	11.000	9.500	8.500	10.000	8.500	8.000	9.000	8.000	7.500	10	M22 x 1,5	280	335	55.70.001-3-
GS 8010	100	475	11.000	9.500	8.500	10.000	8.500	8.000	9.000	8.000	7.500	10	M22 x 1,5	280	335	55.70.001-4-
Unbraked axles up to 9.000 kg axle load with bearing 32213/32215															
GS 9008	110 x 10*	305	11.500	10.000	9.000	10.500	9.000	8.500	9.500	8.500	8.000	8	M20 x 1,5	220	275	55.76.001-1-
GS 9008	110 x 14	385	11.500	10.000	9.000	10.500	9.000	8.500	9.500	8.500	8.000	8	M20 x 1,5	220	275	55.76.001-2-
GS 9010	110 x 10*	305	11.500	10.000	9.000	10.500	9.000	8.500	9.500	8.500	8.000	10	M22 x 1,5	280	335	55.76.001-3-
GS 9010	110 x 14	385	11.500	10.000	9.000	10.500	9.000	8.500	9.500	8.500	8.000	10	M22 x 1,5	280	335	55.76.001-4-
Unbraked axles up to 11.000 kg axle load with bearing 32310/33116															
GS 11008	120 x 10	325	14.000	12.500	11.000	13.000	11.500	10.000	11.500	10.500	9.000	8	M20 x 1,5	220	275	55.88.001-1-
GS 11008	120 x 15	420	14.000	12.500	11.000	13.000	11.500	10.000	11.500	10.500	9.000	8	M20 x 1,5	220	275	55.88.001-2-
GS 11010	120 x 10	325	14.000	12.500	11.000	13.000	11.500	10.000	11.500	10.500	9.000	10	M22 x 1,5	280	335	55.88.001-3-
GS 11010	120 x 15	420	14.000	12.500	11.000	13.000	11.500	10.000	11.500	10.500	9.000	10	M22 x 1,5	280	335	55.88.001-4-
Unbraked axles up to 12.000 kg axle load with bearing 33213/33118															
GS 12010	150 x 10	425	15.000	15.000	14.000	15.000	15.000	13.000	15.000	13.500	12.000	10	M22 x 1,5	280	335	55.72.001-1-
GS 12010	150 x 16	565	15.000	15.000	14.000	15.000	15.000	13.000	15.000	13.500	12.000	10	M22 x 1,5	280	335	55.72.001-2-
Unbraked axles up to 14.000 kg axle load with bearing 32219/33215															
GS 14010	150 x 16	530	17.000	17.000	16.000	17.000	16.000	15.000	16.000	15.000	14.000	10	M22 x 1,5	280	335	55.74.001-1-
GS 14010	150 x 20	615	17.000	17.000	16.000	17.000	16.000	15.000	16.000	15.000	14.000	10	M22 x 1,5	280	335	55.74.001-2-
GS 14010	150 x 24	725	17.000	17.000	16.000	17.000	16.000	15.000	16.000	15.000	14.000	10	M22 x 1,5	280	335	55.74.001-3-

*The list of options does not apply for these versions. Options available on request.
Track: 1.500–2.300 mm in 50-mm increments. Other dimensions available on request.
Spring centre on request.

List of Options

1	Spring seat									
Code	Designation									Representation / description
0	without									–
A – F	Spring seat for axle types GS 3006 – GS 8010									
	Spring	Square	C	D	E	F	A	B	t	Code
	80	70	101	125	20	21	140	165	15	A
		80	101	135	20	21	140	175	15	B
		90	101	145	20	21	140	185	15	C
		100	101	155	20	21	140	195	15	D
	100	90	126	155	25	26	165	195	15	E
		100	126	165	25	26	165	205	15	F
G – K	Spring seat for axle types GS 9008 – GS 14010									
	Spring	Square	C	D	F	A	B	Code		
	80	120	101	155	21	140	195	G		
	100	120	125	150	26	175	200	H		
	100	120	125	150	26	175	200	I		
	100	150	125	180	25	170	220	J		
	100	150	125	180	25	170	220	K		





* Other spring seats available on request.

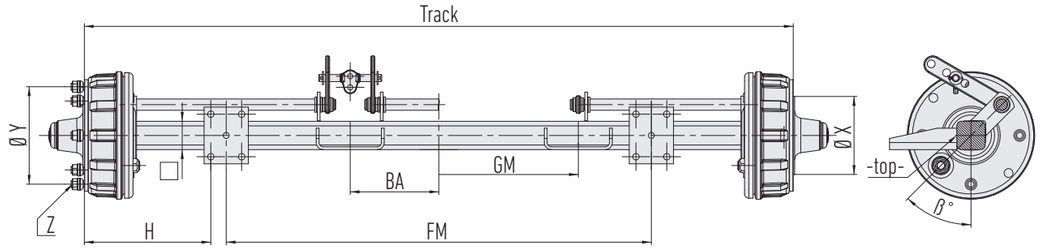
5	Preparation for central tire inflation system	
Code	Designation	Representation / description
0	without	–
1	with	possible only for types GS 11010 (8) / GS 12010 / GS 14010

6	Twin tyres	
Code	Designation	Representation / description
0	without	–
1	with	possible only for types GS 11010 (8) / GS 12010 / GS 14010

7	Sensor – SDS/ABS	
Code	Designation	Representation / description
0	without	–
'A -	with	possible only for types GS 11010 (8) / GS 12010 / GS 14010

10	Special seal	
Code	Designation	Representation / description
0	without	–
1	with	Sealing suitable for difficult conditions

Braked axles
with solid axle beam



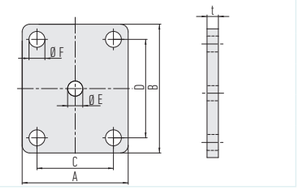
Designation	Axle cross-section (mm)	H	Static axle load (kg)									Brake	Wheel connection				Type code
			25 km/h			40 km/h			60 km/h				Z		Ø X (mm)	Ø Y (mm)	
Braked axles up to 3.600 kg axle load																	
GS 3606	55	215	4.000	3.400	0	3.700	3.100	0	3.400	2.900	0	N 3006	6	M18 x 1,5	160	205	55.53.443-1-
Braked axles up to 4.000 kg axle load																	
GS 4006	60	210	5.300	4.500	0	4.900	4.100	0	4.500	3.800	0	N 3006	6	M18 x 1,5	160	205	55.56.443-1-
GS 4006	70	330	5.300	4.500	0	4.900	4.100	0	4.500	3.800	0	N 3006	6	M18 x 1,5	160	205	55.56.443-2-
Braked axles up to 5.500 kg axle load																	
GS 5506	70	250	7.000	6.000	5.500	6.500	5.500	5.000	6.000	5.000	4.500	N 3006	6	M18 x 1,5	160	205	55.63.443-1-
GS 5506	70	250	7.000	6.000	5.500	6.500	5.500	5.000	6.000	5.000	4.500	N 3108	6	M18 x 1,5	160	205	55.63.454-1-
GS 5506	80	370	7.000	6.000	5.500	6.500	5.500	5.000	6.000	5.000	4.500	N 3108	6	M18 x 1,5	160	205	55.63.454-2-
GS 5508	70	250	7.000	6.000	5.500	6.500	5.500	5.000	6.000	5.000	4.500	N 3108	8	M20 x 1,5	220	275	55.63.454-3-
GS 5508	80	370	7.000	6.000	5.500	6.500	5.500	5.000	6.000	5.000	4.500	N 3108	8	M20 x 1,5	220	275	55.63.454-4-
Braked axles up to 7.000 kg axle load																	
GS 7006	80	290	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3108	6	M18 x 1,5	160	205	55.67.454-1-
GS 7006	90	410	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3108	6	M18 x 1,5	160	205	55.67.454-2-
GS 7006	80	290	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3411	6	M20 x 1,5	220	275	55.67.463-1-
GS 7006	90	410	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3411	6	M20 x 1,5	220	275	55.67.463-2-
GS 7008	80	290	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3108	8	M20 x 1,5	220	275	55.67.454-3-
GS 7008	90	410	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3108	8	M20 x 1,5	220	275	55.67.454-4-
GS 7008	80	290	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3411	8	M20 x 1,5	220	275	55.67.463-3-
GS 7008	80	290	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3411	8	M18 x 1,5	220	275	55.67.463-4-
GS 7008	90	410	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3411	8	M20 x 1,5	220	275	55.67.463-5-
GS 7008	90	410	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3411	8	M18 x 1,5	220	275	55.67.463-6-
GS 7008	120 x 15*	645	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 3411	8	M18 x 1,5	220	275	55.67.463-7-
GS 7008	80	290	9.000	7.500	7.000	8.500	7.000	6.500	7.500	6.500	6.000	N 4008	8	M20 x 1,5	220	275	55.67.461-1-
Braked axles up to 8.000 kg axle load																	
GS 8008	90	345	11.000	9.500	8.500	10.000	8.500	8.000	9.000	8.000	7.500	N 3108	8	M20 x 1,5	220	275	55.70.454-1-
GS 8008	100	475	11.000	9.500	8.500	10.000	8.500	8.000	9.000	8.000	7.500	N 3108	8	M20 x 1,5	220	275	55.70.454-2-
GS 8008	90	345	11.000	9.500	8.500	10.000	8.500	8.000	9.000	8.000	7.500	N 4008	8	M20 x 1,5	220	275	55.70.461-1-
GS 8008	100	475	11.000	9.500	8.500	10.000	8.500	8.000	9.000	8.000	7.500	N 4008	8	M20 x 1,5	220	275	55.70.461-2-
GS 8008	100	475	11.000	9.500	8.500	10.000	8.500	8.000	9.000	8.000	7.500	N 3411	8	M20 x 1,5	220	275	55.70.463-1-
GS 8010	90	345	11.000	9.500	8.500	10.000	8.500	8.000	9.000	8.000	7.500	N 4008	10	M22 x 1,5	280	335	55.70.461-3-
GS 8010	100	475	11.000	9.500	8.500	10.000	8.500	8.000	9.000	8.000	7.500	N 4008	10	M22 x 1,5	280	335	55.70.461-4-

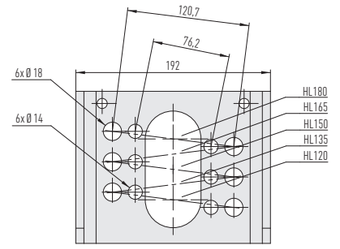
* Hollow axle beam.

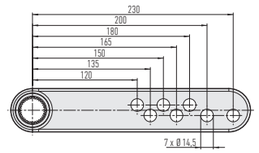
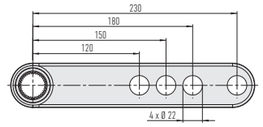
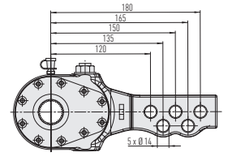
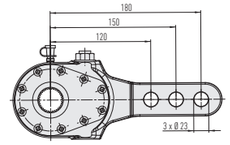
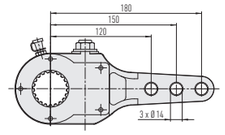
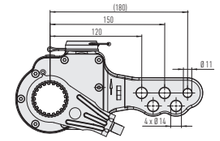
Track: 1.500–2.300 mm in 50-mm increments. Other dimensions available on request.
Spring centre / brake cylinder bracket centre on request.

List of Options

1	Spring seat									
Code	Designation									Representation / description
0	without									–
A – F	Spring	Square	C	D	E	F	A	B	t	Code
	80	70	101	125	20	21	140	165	15	A
		80	101	135	20	21	140	175	15	B
		90	101	145	20	21	140	185	15	C
		100	101	155	20	21	140	195	15	D
	100	90	126	155	25	26	165	195	15	E
		100	126	165	25	26	165	205	15	F



2	Brake cylinder bracket	
Code	Designation	Representation / description
0	without	–
1	β = 0°	

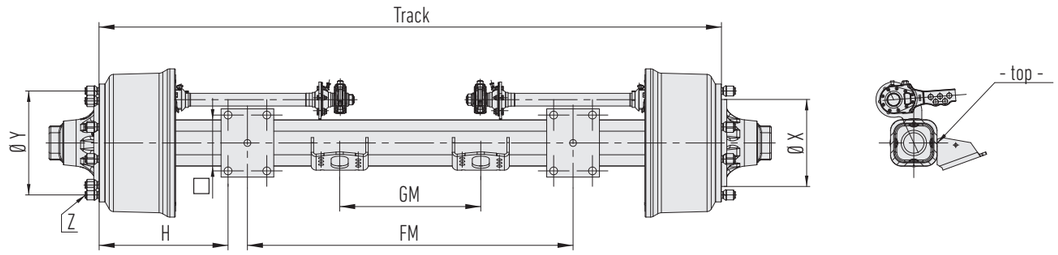
3	Brake lever	
Code	Designation	Representation / description
0	without	–
1	Lever for direct operation (two cylinder / axle)	
2	Lever for brake equaliser (one cylinder / axle)	
3	Manual slack adjuster (MSA) for direct operation (two cylinder / axle)	
4	Manual slack adjuster (MSA) for brake equaliser (one cylinder / axle)	
5	Manual slack adjuster (MSA) for direct operation* (two cylinder / axle)	
6	Automatic slack adjuster (ASA)	

* Only for brakes N 3411 - 1.

4	Brake equalisation	
Code	Designation	Representation / description
0	without	Two brake cylinders
1	Middle	One brake cylinder BA = 0
2	Offset (left)	One brake cylinder BA = 250 mm
3	Offset (right)	One brake cylinder BA = 250 mm

Other BA dimensions on request

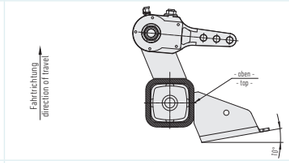
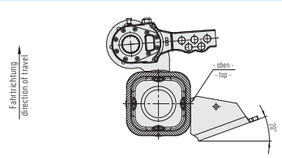
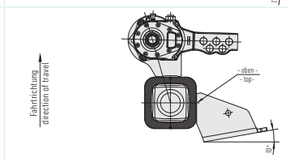
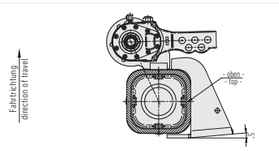
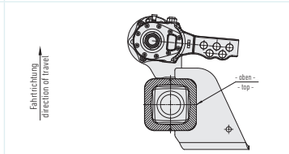
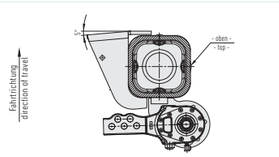
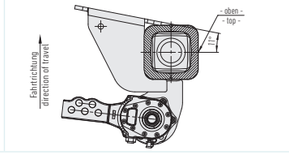
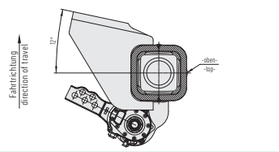
Braked axles
with hollow axle beam

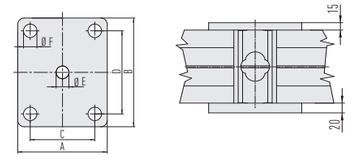
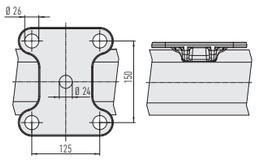
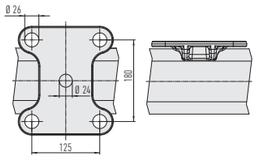


Axle type	Axle cross-section (mm)	H (mm)	Static axle load (kg)						Brake	Wheel connection				Type code
			40 km/h			60 km/h				Z	Ø X (mm)	Ø Y (mm)		
Braked axles up to 9.000 kg axle load														
GS 9008	110 x 10*	305	9.000	10.500	8.500	8.500	9.500	8.000	N 3411	8	M20 x 1,5	220	275	55.76.463-1-
GS 9008	110 x 14	385	9.000	10.500	8.500	8.500	9.500	8.000	N 3411	8	M20 x 1,5	220	275	55.76.463-2-
GS 9008	110 x 10*	305	9.000	10.500	8.500	8.500	9.500	8.000	N 4012	8	M20 x 1,5	220	275	55.76.462-1-
GS 9008	110 x 14	385	9.000	10.500	8.500	8.500	9.500	8.000	N 4012	8	M20 x 1,5	220	275	55.76.462-2-
GS 9010	110 x 10*	305	9.000	10.500	8.500	8.500	9.500	8.000	N 4012	10	M22 x 1,5	280	335	55.76.462-3-
GS 9010	110 x 14	385	9.000	10.500	8.500	8.500	9.500	8.000	N 4012	10	M22 x 1,5	280	335	55.76.462-4-
Braked axles up to 11.000 kg axle load														
GS 11008	120 x 10	325	11.500	13.000	10.000	10.500	11.500	9.000	N 4008	8	M20 x 1,5	220	275	55.88.461-1-
GS 11008	120 x 15	420	11.500	13.000	10.000	10.500	11.500	9.000	N 4008	8	M20 x 1,5	220	275	55.88.461-2-
GS 11008	120 x 10	325	11.500	13.000	10.000	10.500	11.500	9.000	N 4012	8	M20 x 1,5	220	275	55.88.462-1-
GS 11008	120 x 15	420	11.500	13.000	10.000	10.500	11.500	9.000	N 4012	8	M20 x 1,5	220	275	55.88.462-2-
GS 11008	120 x 10	325	11.500	13.000	10.000	10.500	11.500	9.000	FL 4112	8	M22 x 1,5	220	275	55.88.460-1-
GS 11008	120 x 15	420	11.500	13.000	10.000	10.500	11.500	9.000	FL 4112	8	M22 x 1,5	220	275	55.88.460-2-
GS 11010	120 x 10	325	11.500	13.000	10.000	10.500	11.500	9.000	N 4008	10	M22 x 1,5	280	335	55.88.461-3-
GS 11010	120 x 15	420	11.500	13.000	10.000	10.500	11.500	9.000	N 4008	10	M22 x 1,5	280	335	55.88.461-4-
GS 11010	120 x 10	325	11.500	13.000	10.000	10.500	11.500	9.000	N 4012	10	M22 x 1,5	280	335	55.88.462-3-
GS 11010	120 x 15	420	11.500	13.000	10.000	10.500	11.500	9.000	N 4012	10	M22 x 1,5	280	335	55.88.462-4-
GS 11010	120 x 10	325	11.500	13.000	10.000	10.500	11.500	9.000	FL 4112	10	M22 x 1,5	280	335	55.88.460-3-
GS 11010	120 x 15	420	11.500	13.000	10.000	10.500	11.500	9.000	FL 4112	10	M22 x 1,5	280	335	55.88.460-4-
GS 11010	120 x 10	325	11.500	13.000	10.000	10.500	11.500	9.000	FL 4118	10	M22 x 1,5	280	335	55.88.449-1-
GS 11010	120 x 15	420	11.500	13.000	10.000	10.500	11.500	9.000	FL 4118	10	M22 x 1,5	280	335	55.88.449-2-
Braked axles up to 12.000 kg axle load														
GS 12010	150 x 10	425	15.000	15.000	13.000	13.500	15.000	12.000	FL 4112	10	M22 x 1,5	280	335	55.72.460-1-
GS 12010	150 x 16	565	15.000	15.000	13.000	13.500	15.000	12.000	FL 4112	10	M22 x 1,5	280	335	55.72.460-2-
GS 12010	120 x 15	345	15.000	15.000	13.000	13.500	15.000	12.000	FL 4118	10	M22 x 1,5	280	335	55.77.449-1-
GS 12010	150 x 10	425	15.000	15.000	13.000	13.500	15.000	12.000	FL 4118	10	M22 x 1,5	280	335	55.77.449-2-
GS 12010	150 x 16	565	15.000	15.000	13.000	13.500	15.000	12.000	FL 4118	10	M22 x 1,5	280	335	55.77.449-3-
Braked axles up to 15.000 kg axle load														
GS 14010	150 x 16	530	16.000	17.000	15.000	15.000	16.000	14.000	FL 4118	10	M22 x 1,5	280	335	55.74.449-1-
GS 14010	150 x 20	615	16.000	17.000	15.000	15.000	16.000	14.000	FL 4118	10	M22 x 1,5	280	335	55.74.449-2-
GS 14010	150 x 24	725	16.000	17.000	15.000	15.000	16.000	14.000	FL 4118	10	M22 x 1,5	280	335	55.74.449-3-
Brake axles up to 12.000 kg axle load for 80 km/h														
GSN 12010	150 x 16		12.000 at 80 km/h						SN 4220	10	M22 x 1,5	280	335	55.72.744-1-

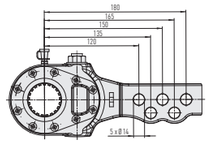
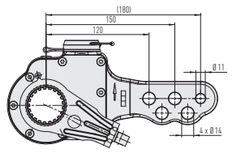
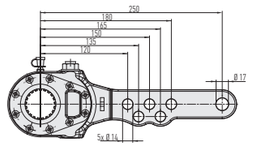
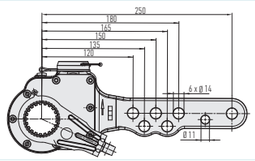
*The list of options does not apply for these versions. Options available on request.
Track: 1.700–2.300 mm in 50-mm increments. Other dimensions available on request.
Spring centre / brake cylinder bracket centre on request.
The axle loads depend on the track, spring centre and tyres used.

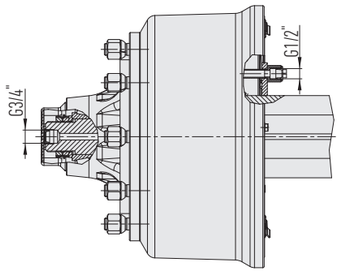
List of Options

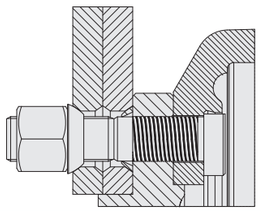
2	Brake cylinder bracket				
Code	Designation	Representation / description	Code	Designation	Representation / description
0	without	–			
1	Brake cylinder bracket for GS 9000, Position of the diaphragm cylinder is above the axle		5	Brake cylinder bracket for GS 12000 / GS 14000, Position of the diaphragm cylinder is above the axle	
2	Brake cylinder bracket for GS 11000, Position of the diaphragm cylinder is above the axle		6	Brake cylinder bracket for GS 12000 / GS 14000, Position of the diaphragm cylinder is above the axle	
3	Brake cylinder bracket for GS 11000, Position of the diaphragm cylinder is above the axle		7	Brake cylinder bracket for GS 12000 / GS 14000, Position of the diaphragm cylinder is under the axle	
4	Brake cylinder bracket for GS 11000, Position of the diaphragm cylinder is under the axle		8	Brake cylinder bracket for GS 12000 / GS 14000, Position of the diaphragm cylinder is under the axle	

1	Spring seat									
Code	Designation									Representation / description
0	without									–
A – E	Spring seat									
	Spring	Square	C	D	E	F	A	B	Code	
	80	120	101	155	20	21	140	195	A	
	100	120	125	150	25	26	175	200	B	
		120	125	150	24	26	175	200	C	
		150	125	180	22	25	170	220	D	
		150	125	180	25	25	170	220	E	
F	Spring seat for 120 mm hollow axle beam (one spring seat on the axle)									
G	Spring seat for 150 mm hollow axle beam (one spring seat on the axle)									

List of Options

3	Brake lever				
Code	Designation	Representation / description	Code	Designation	Representation / description
0	without	–			
1	Manual slack adjuster (MSA) 1		3	Automatic slack adjuster (ASA) 1	
2	Manual slack adjuster (MSA) 2		4	Automatic slack adjuster (ASA) 2	

5	Preparation for central tyre inflation		
Code	Designation	Description	Representation
0	without	–	–
1	with	Not possible for GS 9000	

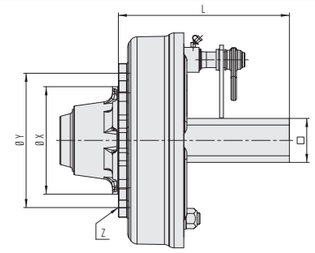
6	Twin tyres	
Code	Designation	Representation
0	without	–
1	with	

7	Sensor – SDS/ABS	
Code	Designation	Representation / description
0	without	–
A –	with	Possible sensor variants SDS/ABS see page 107

Braking axle stub

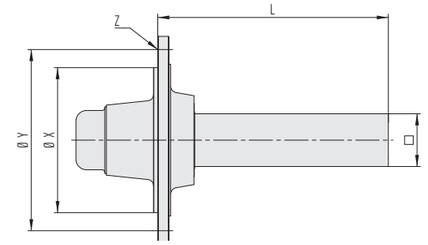
Braked
Solid axle beam or hollow axle beam

The same variants and options are available as with the other axles.
See page: 35
Length (L): on request



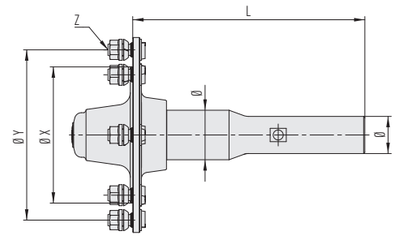
Unbraked
Solid axle beam or hollow axle beam

The same variants and options are available as with the other axles.
See page: 33
Length (L): on request

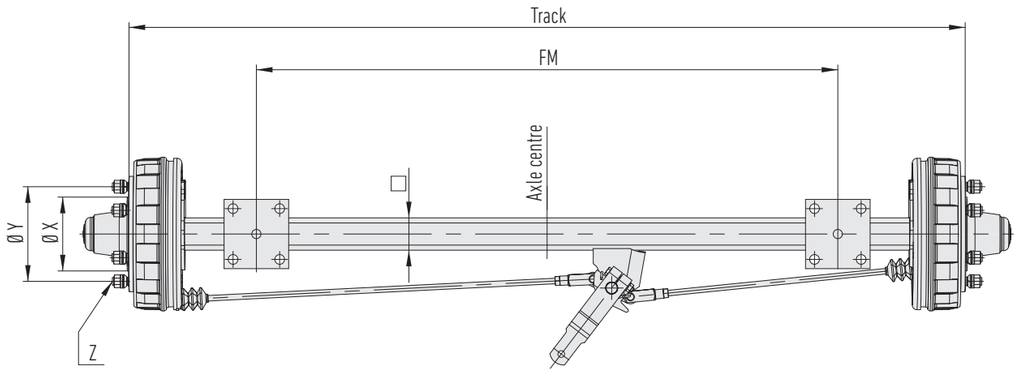


Special versions

With solid axle stub,
the round axle beam is also possible.
Length (L) and diameter (Ø) on request



Axles
with reversing mechanism

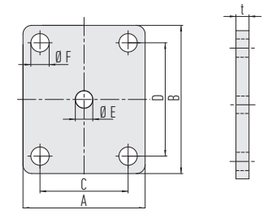


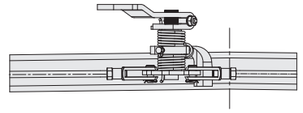
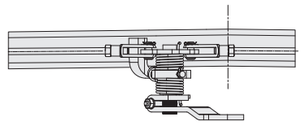
Axle type	Axle cross-section (mm)	H (mm)	Static axle load (kg)						Brake	Wheel connection			Type code
			25 km/h			40 km/h				Z	Ø X (mm)	Ø Y (mm)	
Braked axles with wedge-type brake up to 3.600 kg axle load													
GS 3606	55	215	4.000	3.400	0	3.700	3.100	0	S 3006-7 RASK	6	M18 x 1,5	160	205	55.53.375-1-
GS 3606	55	215	4.000	3.400	0	3.700	3.100	0	S 3006-7 RAZG	6	M18 x 1,5	160	205	55.53.381-1-
Braked axles with wedge-type brake up to 4.000 kg axle load													
GS 4006	60	330	5.300	4.500	0	4.900	4.100	0	S 3006-7 RASK	6	M18 x 1,5	160	205	55.56.375-1-
GS 4006	60	330	5.300	4.500	0	4.900	4.100	0	S 3006-7 RAZG	6	M18 x 1,5	160	205	55.56.381-1-
GS 4006	60	330	5.300	4.500	0	4.900	4.100	0	S 3006-7 ZG	6	M18 x 1,5	160	205	55.56.384-1-
Braked axles with wedge-type brake up to 5.500 kg axle load													
GS 5506	70	250	7.000	6.000	5.500	6.500	5.500	5.000	S 3006-7 RASK	6	M18 x 1,5	160	205	55.63.375-1-
GS 5506	80	370	7.000	6.000	5.500	6.500	5.500	5.000	S 3006-7 RASK	6	M18 x 1,5	160	205	55.63.375-2-
GS 5506	70	250	7.000	6.000	5.500	6.500	5.500	5.000	S 3006-7 RAZG	6	M18 x 1,5	160	205	55.63.381-1-
GS 5506	80	370	7.000	6.000	5.500	6.500	5.500	5.000	S 3006-7 RAZG	6	M18 x 1,5	160	205	55.63.381-2-

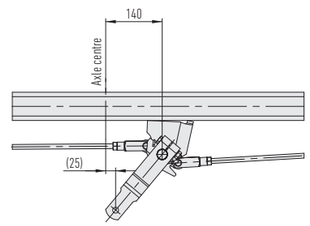
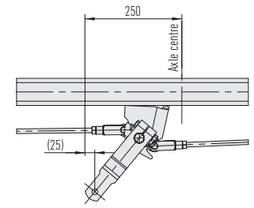
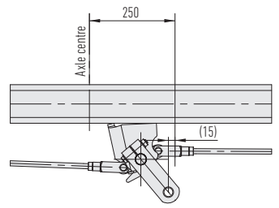
RASK: Reversing mechanism with cable tubes: equipping of the axle with Bowden brake cable
RAZG: Reversing mechanism with brake linkage: equipping of the axle with brake linkage
ZG: Brake linkage without reversing mechanism

List of Options

1	Spring seat									
Code	Designation									Representation / description
0	without									–
A – B	Spring seat									
	Spring	Square	C	D	E	F	A	B	t	Code
	80	70	101	125	20	21	140	165	15	A
		80	101	135	20	21	140	175	15	B



3	Brake lever	
Code	Designation	Representation / description
0	without	–
1	top	
2	bottom	

4	Brake equalisation	
Code	Designation	Representation / description
0	without	–
1	Middle	
2	offset – left BA = 250	
3	offset – right BA = 250	

Other BA dimensions on request

Overrun hitch

Stable when towing, firm when braking

For all vehicles where an operated brake cannot be used, BPW offers you a safe and low-maintenance brake system with overrun hitches for central and multi-axle trailers in combination with BPW axles with reversing mechanism and special transmission devices.



AM 2000/AM 2007
For multi-axles trailers



AVE 2000/AVEG 2000
For centre axle trailers

Benefits that convince

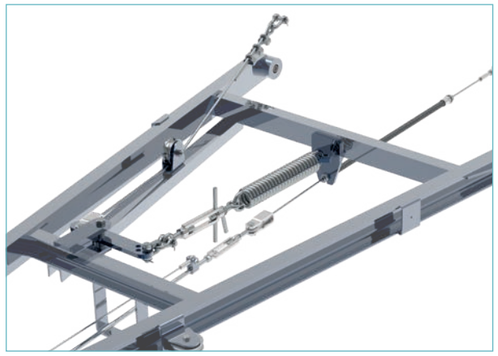
- Very good braking values in combination with BPW axles
- Versions for different weight ranges
- Height adjustment device (Klemmfix) for simple hitching
- Customised versions for special application areas such as cutterbar trolleys or boat trailers

Maintenance-free height adjustment device for AM 2007

In addition to Klemmfix, BPW also offers an easily adjustable height adjustment device, which functions with tension spring and wire cable. On overrun hitches, this solution is dimensioned up to an approx. length of 4.000 mm.

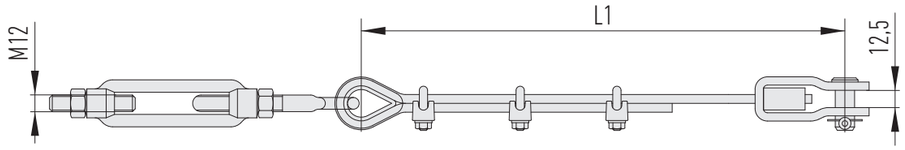
Other features:

- Simple and variable assembly due to less attachment points
- Multi-stage adjustable lever length
- Infinitely variable adjustment of the retention force

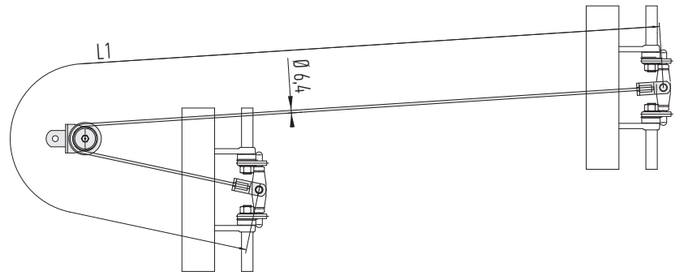


Transmission devices

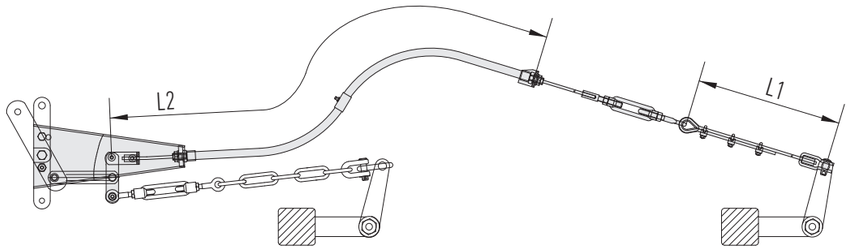
For overrun hitches, BPW offers transmission devices that are especially matched to the respective vehicle.
In combination with BPW axles with reversing mechanism, the optimum laying of the cables ensures for the best braking results.



For 2 wheel operation / single axle

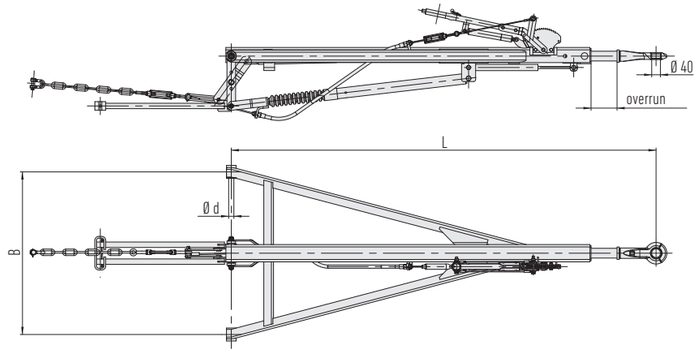


For tandem



For 4 wheel operation / two-axles

Overrun hitch
for multi-axle trailers



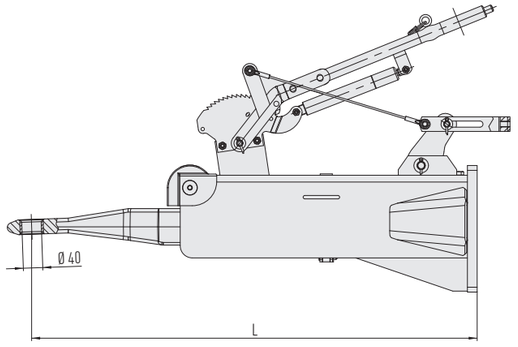
Type	Version	Permitted total weight Min.-Max. (kg)			Wheel brake	Overrun travel (mm)	Steering lever: Ratio (mm)	Type code
		German Road Traffic Licensing Regulations TA 30 up to 25 km/h	German Road Traffic Licensing Regulations TA 30 up to and more than 25 km/h	EU 2015/68 up to 40 km/h				
Overrun hitch for multi-axle trailers - AM 2000								
AM 2000	AK 12	3.264—8.000	—	—	S 3006-7	120	120/100	48.69.833-1-
AM 2000	BK 12	—	5.175—8.000	4.200—8.000	S 3006-7	120	120/100	48.69.833-2-
Overrun hitch for multi-axle trailers - AM 2007								
AM 2007	AK 12	3.264—8.000	—	—	S 3006-7	120	120/100	48.69.833-5-
AM 2007	BK 12	4.050—8.000	5.175—8.000	4.200—8.000	S 3006-7	120	120/100	48.69.833-6-

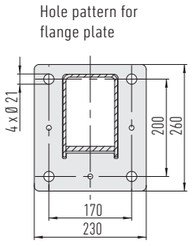
List of Options

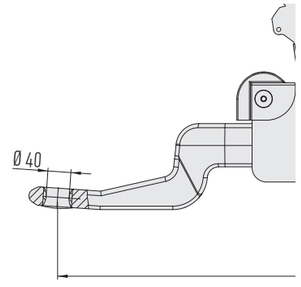
1	Length: L (mm)	
Code	Designation	Representation / description
1	1.960	for AM 2000
2	2.050	for AM 2000 only as per German Road Traffic Licensing Regulations
3	2.500—4.250	for AM 2007 (on request)

2	Centre width B (mm) — Bearing eyes: H/d (mm)	
Code	Designation	Representation / description
1	860 60/24	for AM 2000
2	1.000 70/26	for AM 2000
3	1.100 70/26	for AM 2000
4	1.200 80/28	for AM 2000
5	600—1.600	for AM 2007 Centre width and bearings on request

Overrun hitch
for central axle trailers







Type	Version	Permitted total weight Min.—Max. (kg) EU 2015/68 — up to 40 km/h	Max. permissible drawbar load (kg)	Type code
Overrun hitch for central axle trailers — AVE 2000				
AVE 2000	NK	2.141—6.153	500 840 1.000 1.200	48.69.533-1-
AVE 2000	GK	2.559—7.774	500 840 1.000 1.200	48.69.533-2-
AVE 2000	NH	4.281—8.000	500 840 1.000 1.200	48.69.533-3-
AVE 2000	GH	5.362—8.000	500 840 1.000 1.200	48.69.533-4-

Type	Version	Permitted total weight Min.—Max. (kg) according to the German Road Traffic Licensing Regulation TA 30 up to and more than 25 km/h	Max. permissible drawbar load (kg)	Type code
Overrun hitch for central axle trailers — AVEG 2000				
AVEG 2000	NK	5.046—8.000	 1.000 	48.69.533-5-
AVEG 2000	GK	6.348—8.000	 1.200	48.69.533-6-
AVEG 2000	NH	5.600—8.000	 1.200	48.69.533-7-

N: needle bearing
G: sliding bearing
K: lower total weight
H: higher total weight

List of Options

1	Length: L (mm)	
Code	Designation	Representation / description
1	910	without flange plate
2	920	with flange plate
3	1.060	without flange plate

2	Wheel brake	
Code	Designation	Representation / description
1	S 3006-7 RA	Overrun travel 120 Steering lever transmission 120/100

Steering axles
Control the vehicle and costs

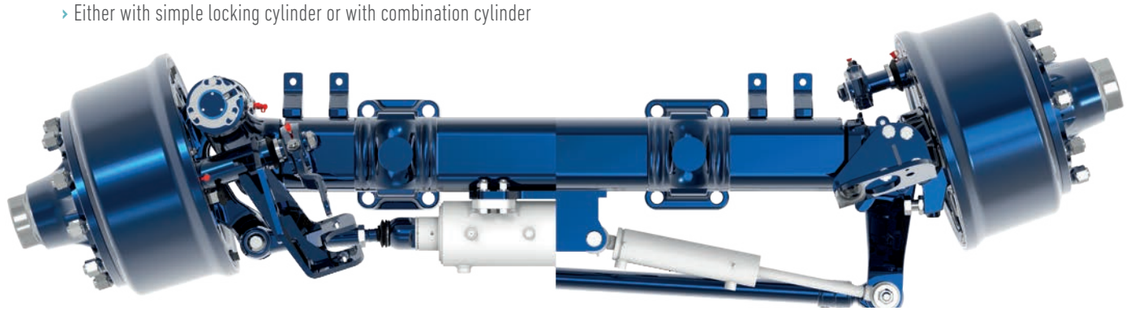
BPW steering axles are suitable for self-steering as well as for force-steering vehicles.
For both applications BPW offers million times proven solutions.

Self-steering: GSLA/GSLL

BPW GSLA/GSLL steering axle. The abbreviation "LL" stands for "Load-dependent steering axle stabilisation" and describes the unique operating principle of the BPW self-steering axle. Conventional steering axle designs require external power-assisted steering stabilisation elements - this is not the case with the BPW self-steering axle.

Your benefits

- Stable driving behaviour due to the waved thrust plate
- Better manoeuvrability in curves
- Less and more even tyre wear
- Best possible ground protection when driving in curves
- Either with simple locking cylinder or with combination cylinder



Force-steering: GSL

BPW GSL steering axles have been especially designed for use in combination with a force-steering system. Due to the steering pivots mounted in the middle, the GSL steering axle permits a large steering angle for good manoeuvrability.

Your benefits

- Axle for hydraulically or electrically controlled force-steering
- Small turning radius
- Reduction of the forces in the steering housing by steering pivots mounted in the middle
- Up to 25° steering angle
- Waved thrust washer for the highest driving stability

Waved thrust washer

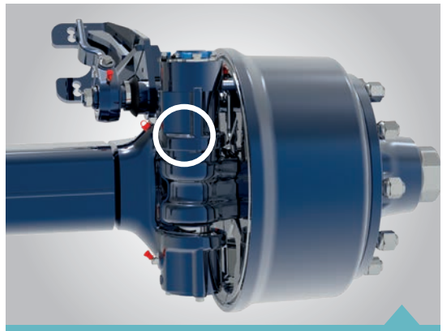
The axle beam and axle stub are connected via steering pivot with undulated thrust bearings. When driving straight ahead **(zero position)**, the wave-like thrust washers keep the wheels on track. The weight of the vehicle presses the wave contours of the upper and lower thrust washers together. The wheels remain stable and aligned in the forward straight ahead position.

When the trailer follows the tractor into a curve, the wheel castor ensures the wheels turn in accordance with the curve radius (the thrust washers slide over one another). The steering axle has the effect that the unit steers better into the curves and almost follows the circular path of the tractor. The lateral tyre forces occurring in the process are distributed optimally to all axles.

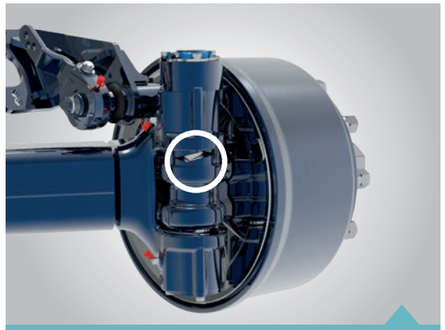
Outstanding stability for your vehicles

Combination cylinder

With the BPW combination cylinder, the axle can be used as self-steering axle or also as force-steered axle. The multi-functional use of the steering axle reduces the warehousing at the vehicle manufacturer. **This allows the decision between force- and self-steering to be made at short notice.**



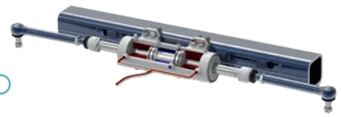
Steering housing when driving straight ahead
(zero position)



Steering housing when driving through bends

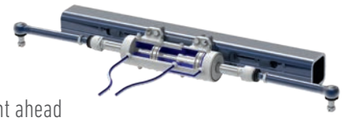
Operating principle

Self-steering

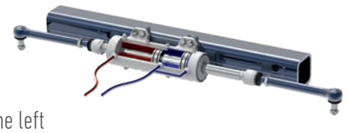


(Steering axle locked for reversing or from 40 km/h)

Force-steering



Driving straight ahead

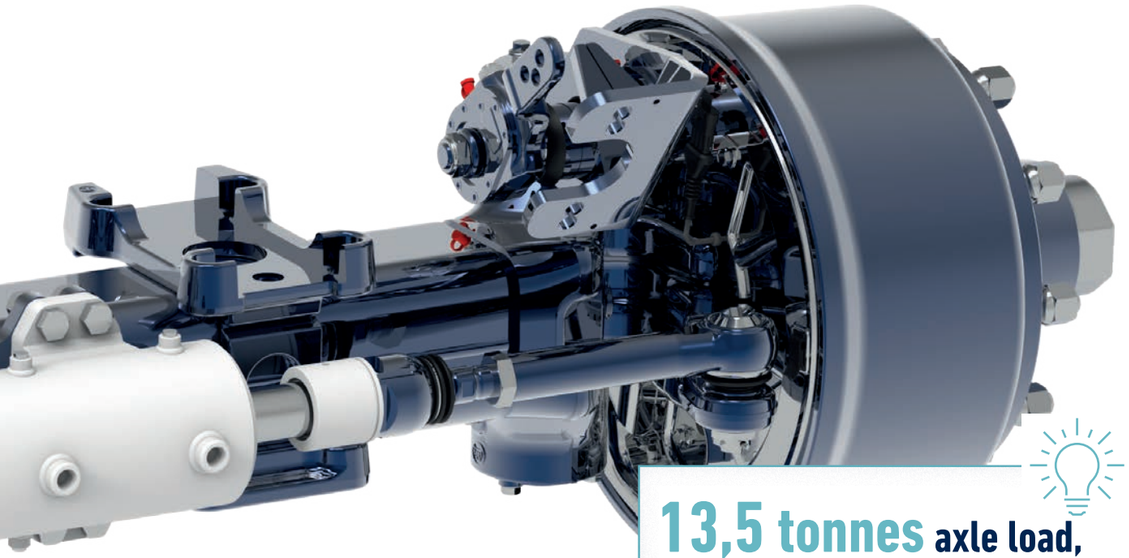


Turned in to the left

AGRO Turn

The new measure for steering axles

As steering-axle specialist, BPW offers AGRO Turn self-steering axles with outstanding quality and reliability thanks to optimised, high-quality components. The steering-knuckle and steering-fork are made exclusively of forged and tempered steel.



13,5 tonnes axle load,
28° maximum **steering angle**
with force-steering

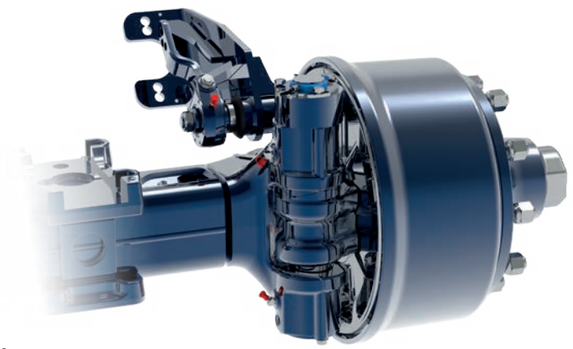
Benefits that convince

- You experience better manoeuvrability thanks to larger steering angle
- You save time thanks to the maintenance-free integrated tie rod
- Forged and annealed steering fork and steering knuckle in order to ensure for a longer service life
- Simple steering stop adjustment – no special tool required

Details

1. Integrated steering angle sensors

The integrated construction guarantees a **stable, reliable function** of the sensors that, depending on the respective type, are protected completely or partially by the adapter.



› Preparation for the electronic force-steering

More information, see page 109

2. Mountable brake cylinder bracket on the AGRO Turn

For the AGRO Turn, BPW offers a flexible easily convertible brake cylinder bracket solution which allows different tyre sizes to be fitted on the same axle. An adjustable brake cylinder bracket means more flexibility and greater ground clearance.

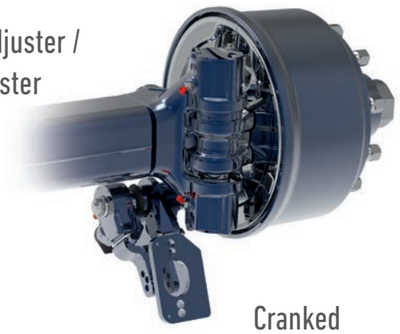
One version (axle) can be **combined with three different** KITs.



Straight Manual slack adjuster / automatic slack adjuster



Cranked (30 mm to the left) Manual slack adjuster / automatic slack adjuster



Cranked (30 mm to the right) Manual slack adjuster / automatic slack adjuster

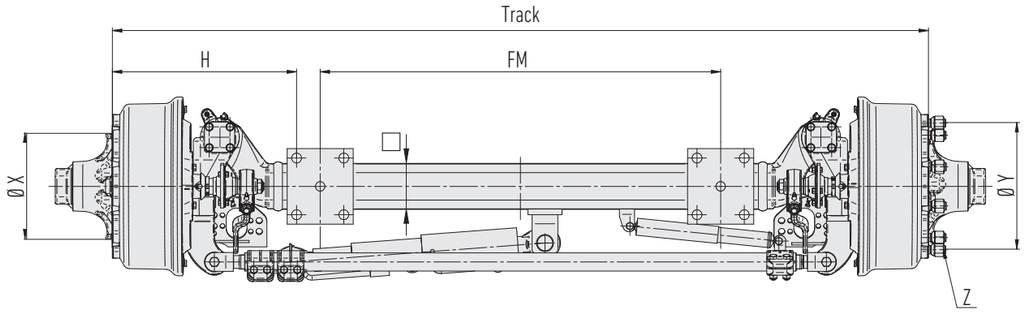
Additional options

Each brake cylinder bracket (with straight or cranked manual slack adjuster / automatic slack adjuster) can be bolted on in four different positions (adjustable by 10°).



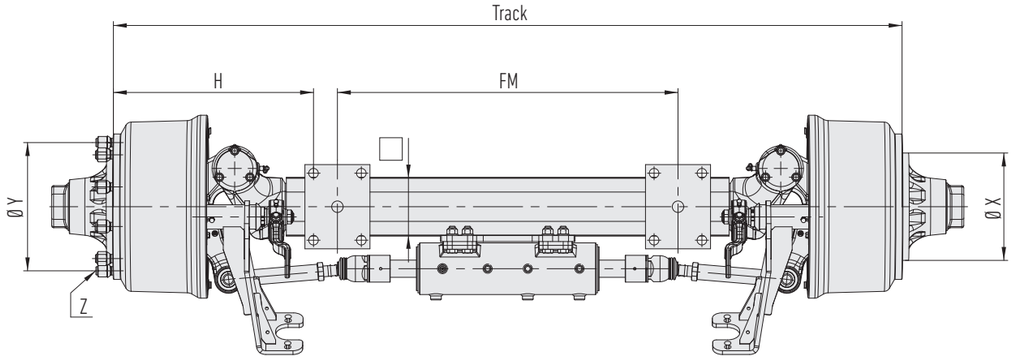


Self-steering axle
with locking cylinder



Axle type	Axle cross-section (mm)	H	Static axle load (kg)			Brake	Wheel connection			Type code
			25 km/h	40 km/h	60 km/h		Z	Ø X (mm)	Ø Y (mm)	
Steering axles up to 7.000 kg axle load										
GSLM 7008	90	490	7.500	7.000	6.500	unbraked	8	M20 x 1,5	220	275	36.67.001-1-
GSLM 7006	90	490	7.500	7.000	6.500	N 3411-1	6	M20 x 1,5	220	275	36.67.463-1-
GSLM 7008	90	490	7.500	7.000	6.500	N 3411-1	8	M18 x 1,5	220	275	36.67.463-2-
GSLM 7008	90	490	7.500	7.000	6.500	N 3411-1	8	M20 x 1,5	220	275	36.67.463-3-
Steering axles up to 9.000 kg axle load										
GSLA 9008	110 x 14	480	10.000	9.000	8.500	unbraked	8	M20 x 1,5	220	275	36.76.001-1-
GSLA 9008	110 x 14	480	10.000	9.000	8.500	N 3411-1	8	M20 x 1,5	220	275	36.76.463-1-
GSLA 9008	110 x 14	480	10.000	9.000	8.500	N 4012-4	8	M20 x 1,5	220	275	36.76.462-1-
GSLA 9010	110 x 14	480	10.000	9.000	8.500	N 4012-4	10	M22 x 1,5	280	335	36.76.462-2-
Steering axles up to 11.000 kg axle load										
GSLA 11008	120 x 15	555	12.000	10.500	10.000	unbraked	8	M20 x 1,5	220	275	36.88.001-1-
GSLA 11008	120 x 15	555	12.000	10.500	10.000	N 4012	8	M20 x 1,5	220	275	36.88.462-1-
GSLA 11008	120 x 15	555	12.000	10.500	10.000	FL 4112	8	M22 x 1,5	220	275	36.88.460-1-
GSLA 11010	120 x 15	555	12.000	10.500	10.000	unbraked	10	M22 x 1,5	280	335	36.88.001-2-
GSLA 11010	120 x 15	555	12.000	10.500	10.000	N 4012	10	M22 x 1,5	280	335	36.88.462-2-
GSLA 11010	120 x 15	555	12.000	10.500	10.000	FL 4112	10	M22 x 1,5	280	335	36.88.460-2-
Steering axles up to 12.000 kg axle load										
GSLL 12010	150 x 16	805	13.000	12.000	11.000	unbraked	10	M22 x 1,5	280	335	36.72.001-1-
GS(H)LL 12010	150 x 16	805	13.000	12.000	11.000	FL 4112	10	M22 x 1,5	280	335	36.72.460-1-
GS(H)LL 12010	150 x 16	805	13.000	12.000	11.000	FL 4118	10	M22 x 1,5	280	335	26.77.449-1-

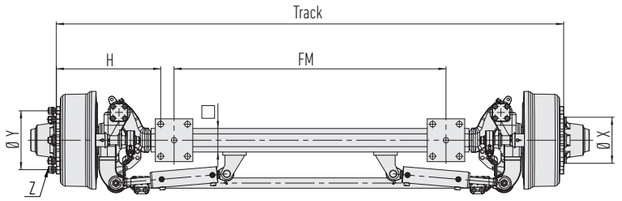
Self-steering axle
with combination cylinder



Axle type	Axle cross-section (mm)	H	Static axle load (kg)			Brake	Wheel connection			Type code
			25 km/h	40 km/h	60 km/h		Z	Ø X (mm)	Ø Y (mm)	
Steering axles up to 11.000 kg axle load										
GSLA 11008	120 x 15	555	12.000	10.500	10.000	unbraked	8	M22 x 1,5	220	275	36.88.001-3-
GSLA 11008	120 x 15	555	12.000	10.500	10.000	FL 4112	8	M22 x 1,5	220	275	36.88.460-3-
GSLA 11010	120 x 15	555	12.000	10.500	10.000	unbraked	10	M22 x 1,5	280	335	36.88.001-4-
GSLA 11010	120 x 15	555	12.000	10.500	10.000	FL 4112	10	M22 x 1,5	280	335	36.88.460-4-
Steering axles up to 13.500 kg axle load*										
GSLL 12010	150 x 16	715	14.000	13.500	12.000	unbraked	10	M22 x 1,5	280	335	36.77.001-1-
GS(H)LL 12010	150 x 16	715	14.000	13.500	12.000	FL 4118	10	M22 x 1,5	280	335	36.77.449-1-
Steering axles up to 15.000 kg axle load										
GSLL 14010	150 x 16	690	15.000	14.000	13.000	unbraked	10	M22 x 1,5	280	335	36.74.001-1-
GS(H)LL 14010	150 x 16	690	15.000	14.000	13.000	FL 4118	10	M22 x 1,5	280	335	36.74.449-1-
Steering axles up to 12.000 kg axle load for 80 km/h										
GSN(H)LL 12010	150 x 16	–	–	–	–	SN 4220	10	M22 x 1,5	280	335	36.72.744-1-

* AGRO Turn.

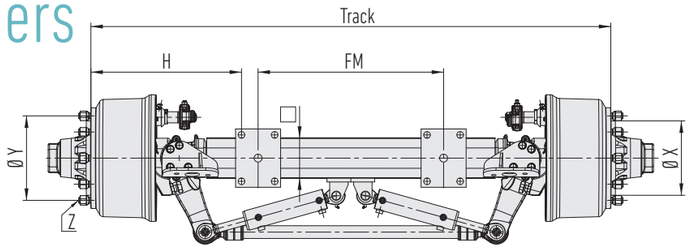
Self-steering axle
with forced steering cylinder



Axle type	Axle cross-section (mm)	H	Static axle load (kg)			Brake	Wheel connection			Type code
			25 km/h	40 km/h	60 km/h		Z	Ø X (mm)	Ø Y (mm)	
Steering axles up to 11,000 kg axle load										
GSLA 9008	110 x 14	480	10.000	9.000	8.500	unbraked	8	M20 x 1,5	220	275	36.76.001-2-
GSLA 9008	110 x 14	480	10.000	9.000	8.500	N 3411-1	8	M20 x 1,5	220	275	36.76.463-2-
GSLA 9008	110 x 14	480	10.000	9.000	8.500	N 4012-4	8	M20 x 1,5	220	275	36.76.462-3-
GSLA 9010	110 x 14	480	10.000	9.000	8.500	N 4012-4	10	M22 x 1,5	280	335	36.76.462-4-

These types are suitable for force-steering.

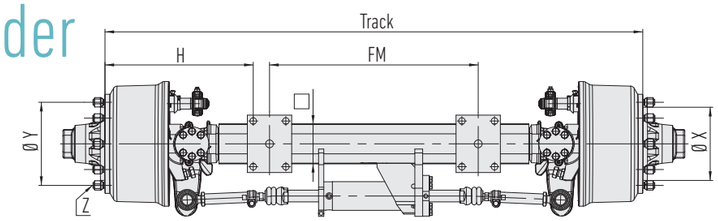
Force-steering axle
with two cylinders



Axle type	Axle cross-section (mm)	H	Static axle load (kg)			Brake	Wheel connection				Type code
			25 km/h	40 km/h	60 km/h		Z	Ø X (mm)	Ø Y (mm)		
Steering axles up to 11.000 kg axle load											
GSL 11008	120 x 15	555	12.000	10.500	10.000	unbraked	8	M22 x 1,5	220	275	36.88.001-5-
GSL 11008	120 x 15	555	12.000	10.500	10.000	FL 4112	8	M22 x 1,5	220	275	36.88.460-5-
GSL 11010	120 x 15	555	12.000	10.500	10.000	unbraked	10	M22 x 1,5	280	335	36.88.001-6-
GSL 11010	120 x 15	555	12.000	10.500	10.000	FL 4112	10	M22 x 1,5	280	335	36.88.460-6-
Steering axles up to 12.000 kg axle load											
GSL 12010	120*	?	13.000	12.000	11.000	FL 4118	10	M22 x 1,5	280	335	26.77.449-2-
GSL 12010	150 x 16	805	13.000	12.000	11.000	unbraked	10	M22 x 1,5	280	335	36.72.001-2-
GSL 12010	150 x 16	805	13.000	12.000	11.000	FL 4118	10	M22 x 1,5	280	335	26.77.449-3-

* 120 mm solid axle beam.

Force-steering axle
with one cylinder

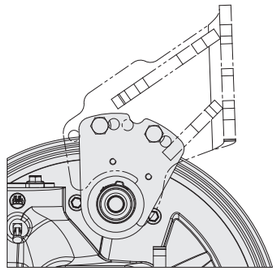
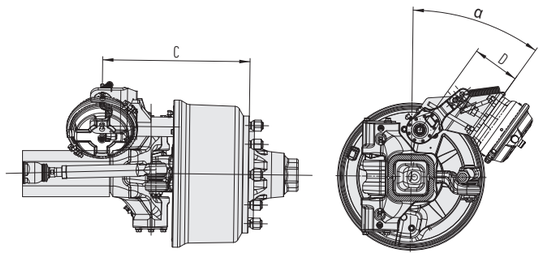
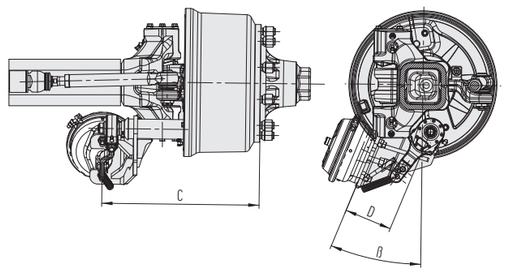
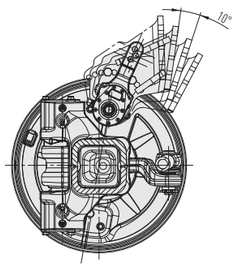


Axle type	Axle cross-section (mm)	H	Static axle load (kg)			Brake	Wheel connection				Type code
			25 km/h	40 km/h	60 km/h		Z	Ø X (mm)	Ø Y (mm)		
Steering axles up to 11.000 kg axle load											
GSL 11008	120 x 15	555	12.000	10.500	10.000	unbraked	8	M22 x 1,5	220	275	36.88.001-7-
GSL 11008	120 x 15	555	12.000	10.500	10.000	FL 4112	8	M22 x 1,5	220	275	36.88.460-7-
GSL 11010	120 x 15	555	12.000	10.500	10.000	unbraked	10	M22 x 1,5	280	335	36.88.001-8-
GSL 11010	120 x 15	555	12.000	10.500	10.000	FL 4112	10	M22 x 1,5	280	335	36.88.460-8-
Steering axles up to 12.000 kg axle load											
GSL 12010	150 x 16	805	13.000	12.000	11.000	unbraked	10	M22 x 1,5	280	335	36.72.001-3-
GSL 12010	150 x 16	805	13.000	12.000	11.000	FL 4118	10	M22 x 1,5	280	335	26.77.449-4-

List of Options

1	Spring seat								
Code	Designation							Representation / description	
0	without							–	
'A – E	Spring seat								
	Spring	Square	C	D	E	F	A	B	Code
	80	120	101	155	20	21	140	195	A
	100	120	125	150	25	26	175	200	B
	100	120	125	150	24	26	175	200	C
	100	150	125	180	22	25	170	220	D
	100	150	125	180	25	25	170	220	E
F	Spring seat for 120 mm hollow axle beam (one spring seat on the axle)								
G	Spring seat for 150 mm hollow axle beam (one spring seat on the axle)								

List of Options

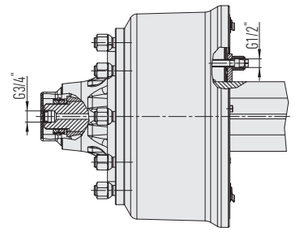
2	Brake cylinder bracket	
Code	Designation	Representation / description
0	without	Not possible for AGRO Turn
1	only with holder for brake cylinder bracket, only for AGRO Turn	
2	with, brake cylinder bracket position is above the axle, only for AGRO Turn	
3	with, brake cylinder bracket position is under the axle, only for AGRO Turn	
4	with, mountable only for AGRO Turn	

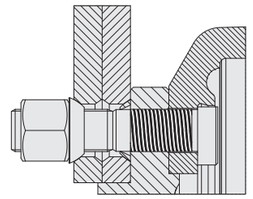
C	D	α
418	154	8
		21
		42
438	154	-5
458	154	8
	263	35
		48
478	154	21
		35
		45
	263	40
508	154	21
	263	40
		45
528	263	40

C	D	α
418	157	24
		35
	157	35
448	154	0
498		22
		35
		42
508	154	42
	154	0
	229	22
		10
528	154	0
		27
	263	0

Brake cylinder bracket position for other steering axle types on request.

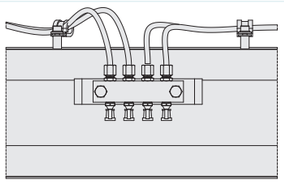
3	Brake lever	
Code	Designation	Representation / description
0	without	–
1	with manual slack adjuster	The use of manual slack adjuster or automatic slack adjuster depends on the brake cylinder bracket solution, the tyre size and the free space. Should be checked in the 3D model.
2	with automatic slack adjuster	

5	Preparation for central tyre inflation system (CTIS)		
Code	Designation	Description	Representation
0	without	–	–
1	with	with	

6	Twin tyres		
Code	Designation	Description	Representation
0	without	–	–
1	with	with	

7	Sensor – SDS/ABS	
Code	Designation	Representation / description
0	without	–
A -	with	possible sensors SDS/ABS – see page 107

8	Sensor – Steering angle	
Code	Designation	Representation / description
0	without	–
A -	with	possible sensors – see page 109

9	Central lubrication system	
Code	Designation	Representation / description
0	without	–
1	with	

10	Special seal	
Code	Designation	Representation / description
0	without	–
A -	with	Sealing suitable for difficult conditions

AGRO Drive

The hydraulic driven axle

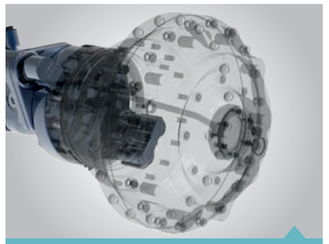
The driven axle for trailers. Keep on driving where others get stuck.

Can be used everywhere thanks to the driven axles in the trailer

The range of application for hydraulic-driven axles is exceptionally diverse. Whether applying fertilizer on sloping terrain, harvesting in wet and slippery ground conditions, drive on silos or loading and transporting on unpaved roads at construction sites, the BPW drive axle, is the right solution for your toughest operating conditions.

- High torque and large speed range
- Protects the ground thanks to reduced slip of tractor drive wheels
- Enables lightweight tractors to pull heavier loads
- Better “payload to total weight” ratio
- Reduced number of transport hauls

Your benefits



CTIS preparation comes as standard.



Can be combined with different suspension systems thanks to varying brake camshaft position.



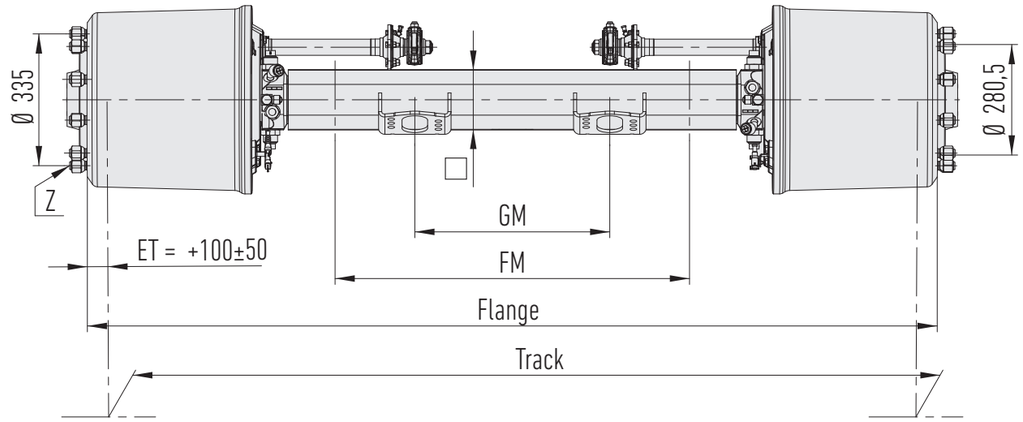
The brake pads are serviced using the well-known BPW method, without disassembly of the drive motor.





Optional dual-sided use of protected SDS (Speed and Direction of Rotation Sensor) and ABS sensors.

Technical Data



Type	GHB 12010 rigid axle
Axle beam	150 x 20 mm
Brake	FL 4118
Max. axle load	13.500 kg at 40 km/h
Min. rim diameter	22,5”
Optimum offset	+105 mm

Specific version on request.

BB6 motor from Black Bruin

The BPW AGRO Drive axle uses a switchable hydrostatic wheel drive from Black Bruin. A more broad speed range can be covered thanks to the two-gear motors. On the road, the radial-piston motors operate in freewheel mode without active control.

Technical Data	First gear	Second gear
Offset	3.150 ccm	1.575 ccm
Max. output power	90 KW	54 KW
Max. working pressure (peak pressure)	450 bar	450 bar
Max. working pressure	400 bar	400 bar
Max. torque (approx.)	18.820 Nm	9.410 Nm
Working pressure*	200 bar	200 bar
Torque*	9.410 Nm	4.705 Nm

* Only with tractor hydraulics.



Application-specific axles from BPW

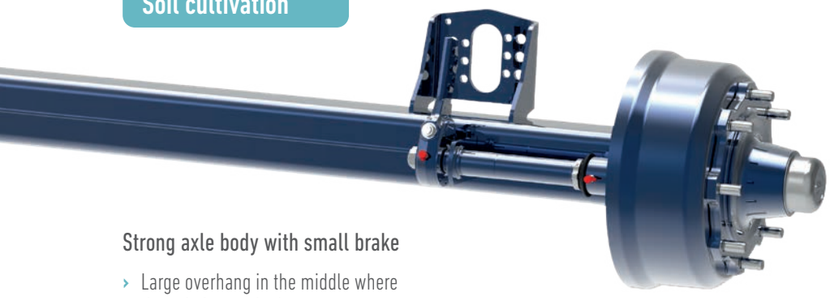
BPW all year long

The exciting thing about agricultural vehicles and machines is that two identical application cases never occur. We know the challenges of the agricultural sector, and with more than 100 years of experience in running gear engineering that we have, we are convinced that humans and machines can form a unit for whom nothing is impossible.

This is why in the running gear technology sector, we offer a high level of competence in the development of individual running gear systems together with our customers. The following special solutions are an example of this:



Soil cultivation



Strong axle body with small brake

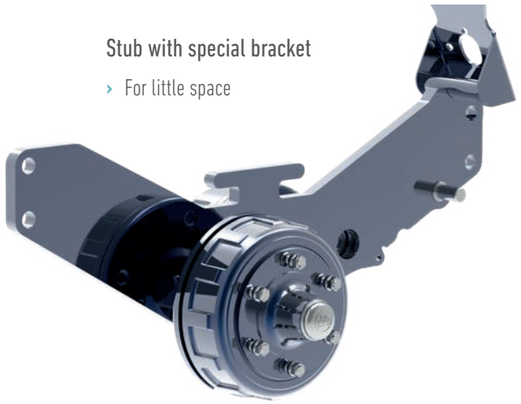
- Large overhang in the middle where the axle is attached

Seed drill



Special axle for seed drills

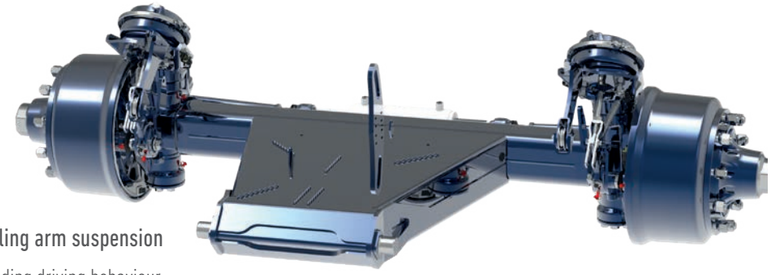
- Compact design for little space



Stub with special bracket

- For little space

Field sprayers

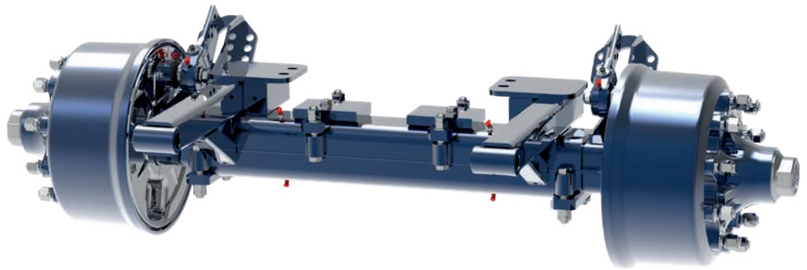


Fixed or steered axles with trailing arm suspension

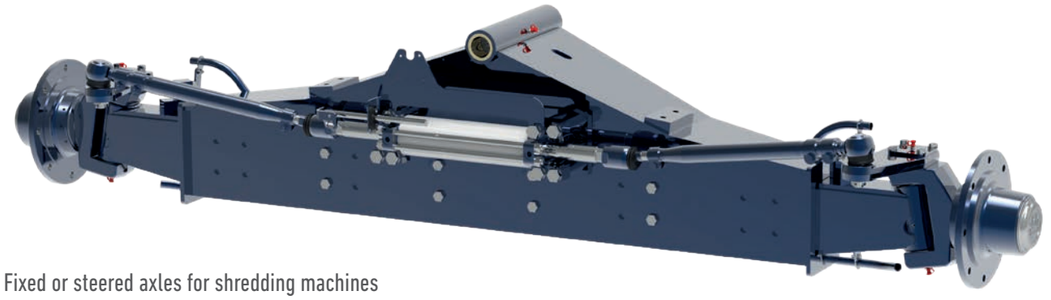
- Solid cassette design for outstanding driving behaviour

Axles with track adjustment

- One axle with variable track



Harvester



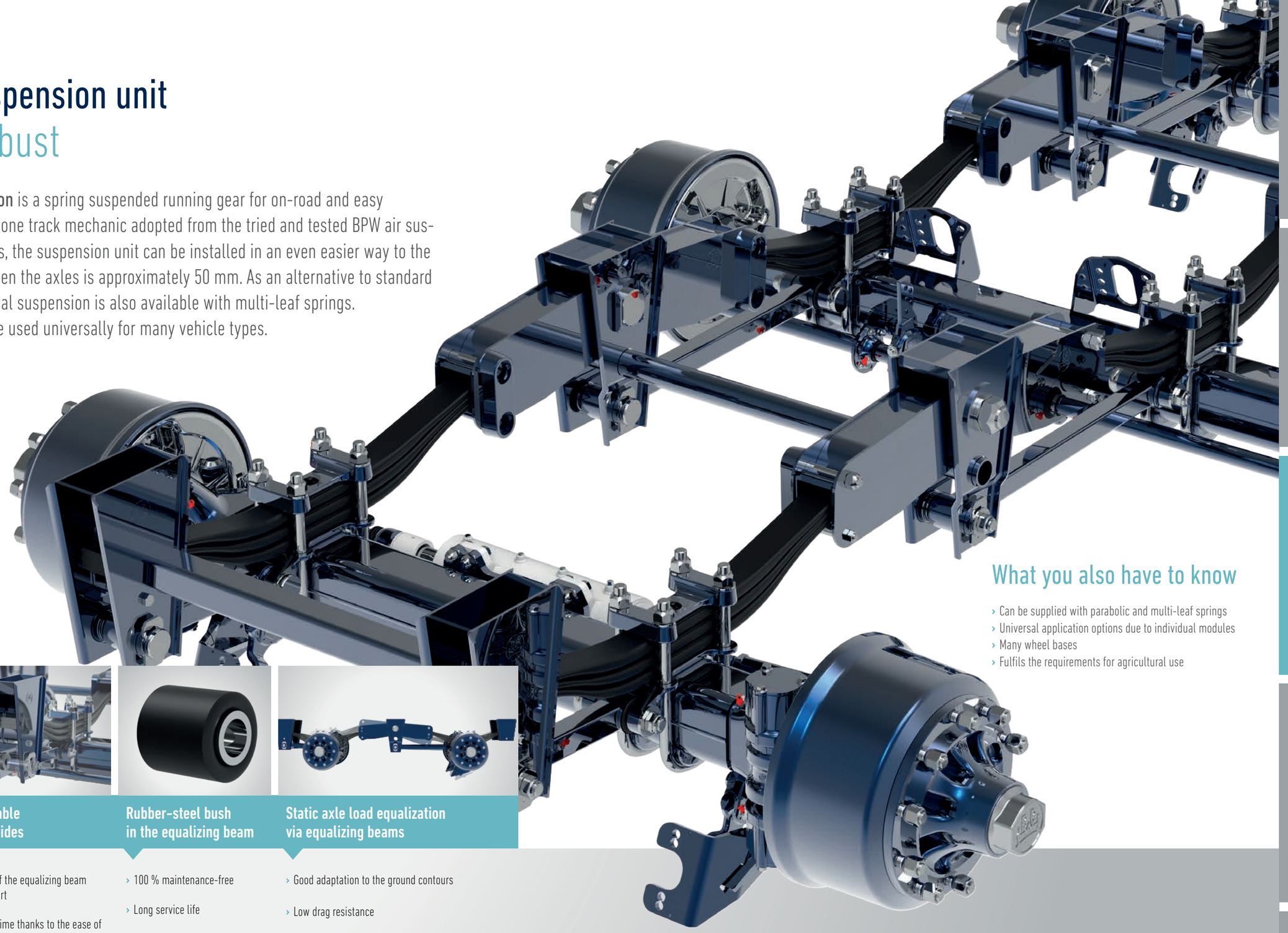
Fixed or steered axles for shredding machines

- Pendulum pin for good adaptation to the ground contours

Running gears

Mechanical suspension unit
Simple, but robust

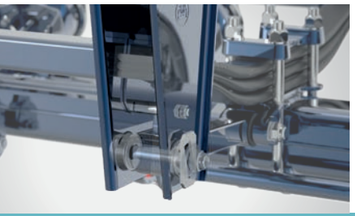
The **BPW mechanical suspension** is a spring suspended running gear for on-road and easy off-road application. Due to the one track mechanic adopted from the tried and tested BPW air suspension for commercial vehicles, the suspension unit can be installed in an even easier way to the chassis. The equalisation between the axles is approximately 50 mm. As an alternative to standard parabolic springs, the mechanical suspension is also available with multi-leaf springs.
The BPW VB running gear can be used universally for many vehicle types.



What you also have to know

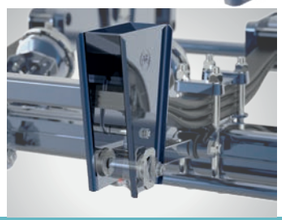
- Can be supplied with parabolic and multi-leaf springs
- Universal application options due to individual modules
- Many wheel bases
- Fulfils the requirements for agricultural use

Benefits that convince



Small details

- Reduction of the assembly time thanks to the one-track of the suspension unit
- Low tyre wear due to the precise track guidance and optimum position of the connecting rods
- Increased service life due to the optimised bearing of the connecting rod



Replaceable spring slides

- No wear of the equalizing beam and support
- You save time thanks to the ease of assembly and repair

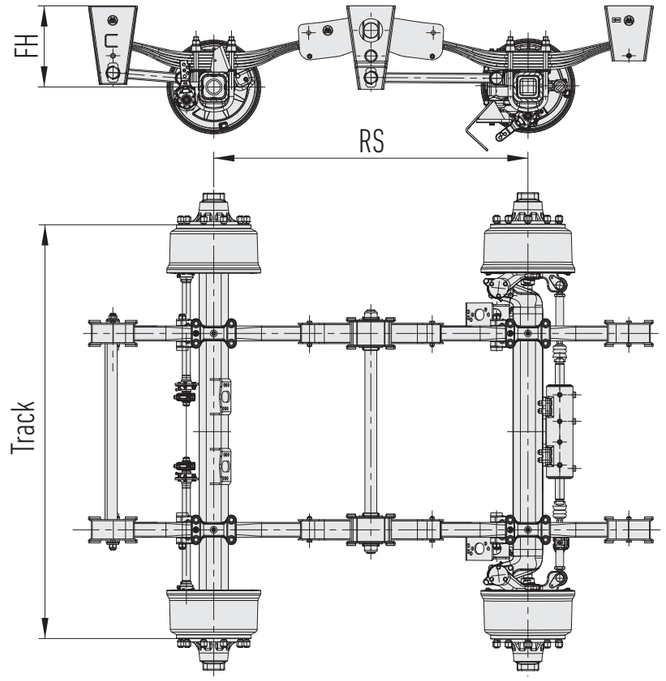
Rubber-steel bush in the equalizing beam

- 100 % maintenance-free
- Long service life

Static axle load equalization via equalizing beams

- Good adaptation to the ground contours
- Low drag resistance

Mechanical suspension unit



Axle type	Axle cross-section (mm)	Static axle load (kg) at 40 km/h			Brake	Wheel connection	Type code
		Single axle	Tandem	Tridem			
GSVB (LA) 8008/8010							
GSVB 8008	100	8.000	16.000	–	unbraked	8 x M20 x 1,5 – 220/275	56.70.04-1-
GSVB 8008	100	8.000	16.000	–	N 4008	8 x M20 x 1,5 – 220/275	56.70.04-2-
GSVB 8008	100	8.000	16.000	–	N 3411	8 x M20 x 1,5 – 220/275	56.70.04-3-
GSVB 8010	100	8.000	16.000	–	unbraked	10 x M22 x 1,5 – 280/335	56.70.04-4-
GSVB 8010	100	8.000	16.000	–	N 4008	10 x M22 x 1,5 – 280/335	56.70.04-5-
Steered version on request.							
GSVB (LA) 9008/9010							
GSVB(LA) 9008	110 x 10(14)	8.500	17.000	-	unbraked	8 x M20 x 1,5 – 220/275	56.76.04-1-
GSVB(LA) 9008	110 x 10(14)	8.500	17.000	-	N 3411	8 x M20 x 1,5 – 220/275	56.76.04-2-
GSVB(LA) 9008	110 x 10(14)	8.500	17.000	-	N 4012	8 x M20 x 1,5 – 220/275	56.76.04-3-
GSVB(LA) 9010	110 x 10(14)	8.500	17.000	-	unbraked	10 x M22 x 1,5 – 280/335	56.76.04-4-
GSVB(LA) 9010	110 x 10(14)	8.500	17.000	-	N 4012	10 x M22 x 1,5 – 280/335	56.76.04-5-
GSVB (LA) 11008/11010							
GSVB(LA) 11008	120 x 10(15)	10.000	20.000	30.000	unbraked	8 x M20 x 1,5 – 220/275	56.88.04-1-
GSVB(LA) 11008	120 x 10(15)	10.000	20.000	30.000	N 4012	8 x M20 x 1,5 – 220/275	56.88.04-2-
GSVB(LA) 11008	120 x 10(15)	10.000	20.000	30.000	FL 4112	8 x M20 x 1,5 – 220/275	56.88.04-3-
GSVB(LA) 11010	120 x 10(15)	10.000	20.000	30.000	unbraked	10 x M22 x 1,5 – 280/335	56.88.04-4-
GSVB(LA) 11010	120 x 10(15)	10.000	20.000	30.000	N 4012	10 x M22 x 1,5 – 280/335	56.88.04-5-
GSVB(LA) 11010	120 x 10(15)	10.000	20.000	30.000	FL 4112	10 x M22 x 1,5 – 280/335	56.88.04-6-
GSVB (LL) 12010							
GSVB(LL) 12010	150 x 10(16)	13.000	26.000	39.000	unbraked	10 x M22 x 1,5 – 280/335	56.72.04-1-
GSVB(LL) 12010	150 x 10(16)	13.000	26.000	39.000	FL 4118	10 x M22 x 1,5 – 280/335	56.72.04-2-

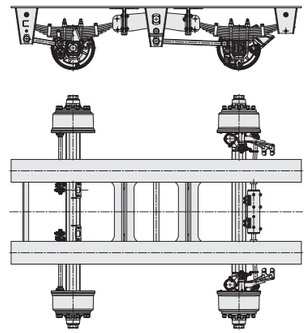
Track widths, spring centres on request.
Axle loads dependent on the ratio track / spring centre and the tyres.

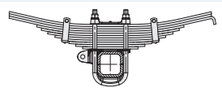
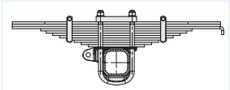
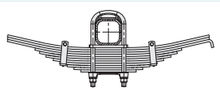
List of Options

1	Spring types	
Code	Designation	Representation / description
1	Parabolic springs	–
2	Multi-leaf spring	–

2	RS – Wheel base – GS 8008 (10) and GS 9008 (10)	
Code	Designation	Representation / description
1	1.380	–

2	RS – Wheel base – GS 11008 (10) and GS 12010	
Code	Designation	Representation / description
1	1.360	–
2	1.380	Not possible for GS 12010
3	1.500	–
4	1.600	–
5	1.820	–

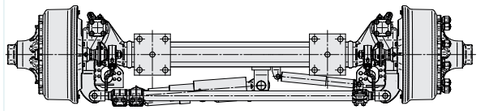
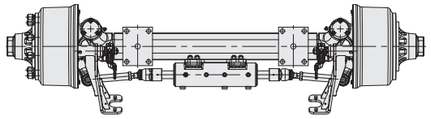
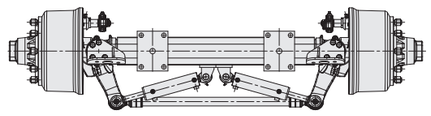
3	Flat frame	
Code	Designation	Representation / description
0	without	–
1	with (further coordination necessary for frame width)	

	Wheel base								
		Loaded	Unloaded	Loaded	Unloaded	Loaded	Unloaded	Loaded	Unloaded
4	FH – Ride height – GS 8010/GS 9010								
Code	Designation								
1	1.380	279	314	–	–	–	–	–	–
4	FH – Ride height – GS 11008/GS 11010								
1	1.360	376	398	367	403	344	382	–	–
2	1.380	305	326	–	–	–	–	–	–
3	1.500	376	398	367	409	344	382		
4	1.600	376	398	367	409	344	382	223	265
5	1.820	368	390	359	401	336	374		
4	FH – Ride height – GS 12010								
1	1.360							–	–
2	1.500	384	413	405	447	359	397		
3	1.600							208	250
4	1.820	376	398	367	409	344	382	208	250

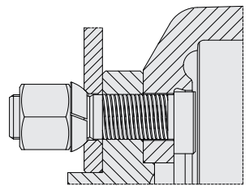
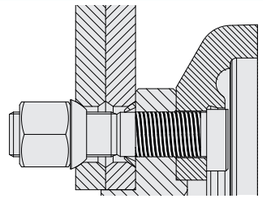
List of Options

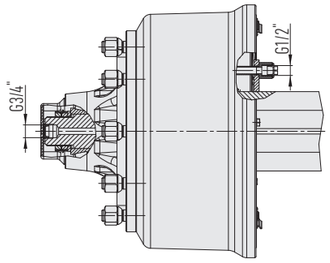
5	Application	
Code	Designation	Representation / description
1	Single axle	–
2	Tandem	–
3	Tridem	–

6	Version	
Code	Designation	Representation / description
1	rigid	rigid – rigid
2	steered	rigid – steered
3	steered	rigid – rigid – steered
4	steered	steered – rigid – steered

7	Steering axle		
Code	Designation	Description	Representation
0	without	–	–
1	Self-steering axle	Locking cylinder – only up to 12 tonnes axle load	
2	Self-steering axle Self-steering	Combination cylinder – possible only for types GS 11010 (8) and GS 12010	
3	Self-steering axle Forced-steering	Combination cylinder – possible only for types GS 11010 (8) and GS 12010	
4	Forced-steering axle	Possible only for types GS 11010 (8) and GS 12010	

8	Brake lever	
Code	Designation	Representation / description
1	Manual slack adjuster	The use of manual slack adjuster or automatic slack adjuster depends on the brake cylinder bracket solution, the tyre size and the free space. Should be checked in the 3D model.
2	Automatic slack adjuster	

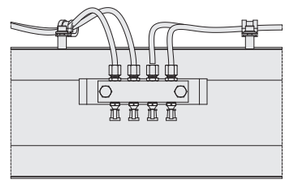
9	Twin tyres		
Code	Designation	Description	Representation
0	without	–	
1	with	possible only for types GS 11010 (8) and GS 12010	

10	Preparation for central tyre inflation (CTIS)		
Code	Designation	Description	Representation
0	without	–	–
1	with	possible only for types GS 11010 (8) and GS 12010	

11	Sensor – SDS/ABS – Rigid axle	
Code	Designation	Representation / description
0	without	–
A-	with	possible sensors SDS/ABS – see page 107

12	Sensor – SDS/ABS – Steering axle	
Code	Designation	Representation / description
0	without	–
A-	with	possible sensors SDS/ABS – see page 107

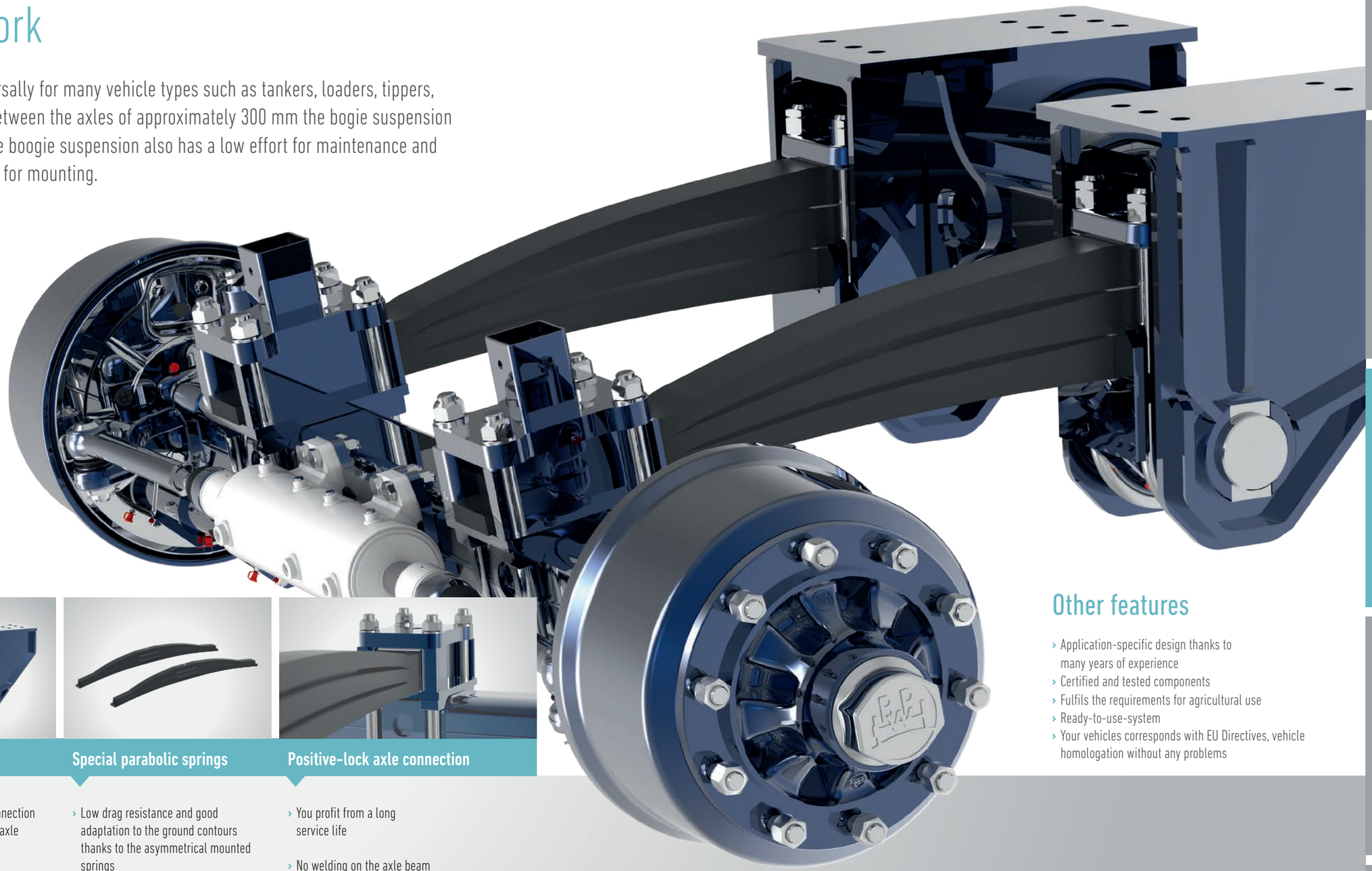
13	Sensor - Steering angle	
Code	Designation	Representation / description
0	without	–
A-	with	possible sensors only with GS 12010 and GS 14010 – see page 109

14	Central lubrication system	
Code	Designation	Representation / description
0	without	–
1	with (for specific lubrication points, further consultation is necessary)	

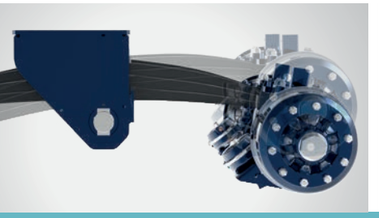
15	Brake cylinder	
Code	Designation	Representation / description
0	without	–
1	with	The size of the brake cylinder is determined by the brake calculation

Boogie suspension unit
Born for hard work

The **BPW boogie** can be used universally for many vehicle types such as tankers, loaders, tippers, etc. Due to the large equalisation between the axles of approximately 300 mm the bogie suspension is very suitable for off-road use. The boogie suspension also has a low effort for maintenance and is shipped as a complete unit ready for mounting.



Benefits that convince



Large pendulum radius

- Low drag resistance and good adaptation to the ground contours
- Perfect for off-road use



HD support

- Optimum connection between the axle and chassis
- Increased loading capacity
- Optimised design for a better flow of forces

Special parabolic springs

- Low drag resistance and good adaptation to the ground contours thanks to the asymmetrical mounted springs
- No brake load transfer thanks to the optimum weight transfer

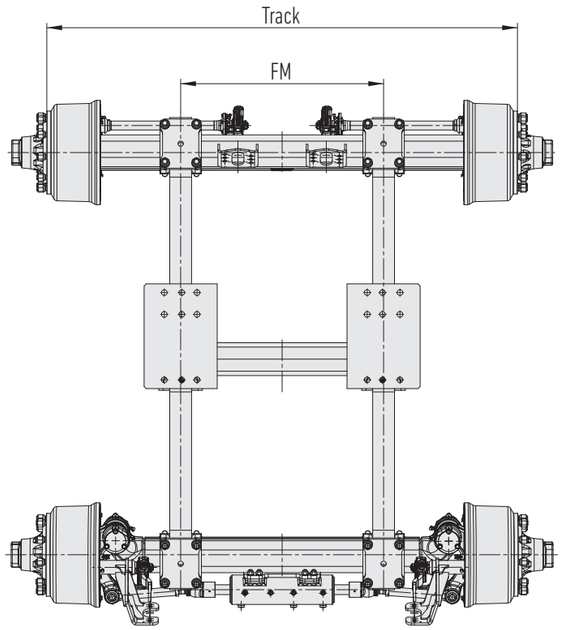
Positive-lock axle connection

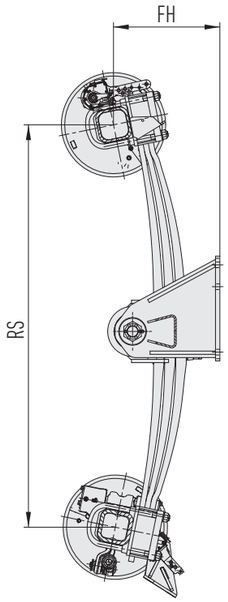
- You profit from a long service life
- No welding on the axle beam to ensure a long service life
- High load capacity

Other features

- Application-specific design thanks to many years of experience
- Certified and tested components
- Fulfils the requirements for agricultural use
- Ready-to-use-system
- Your vehicles corresponds with EU Directives, vehicle homologation without any problems

Boogie suspension unit

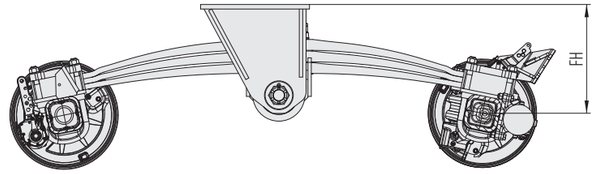
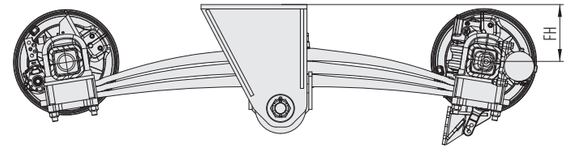




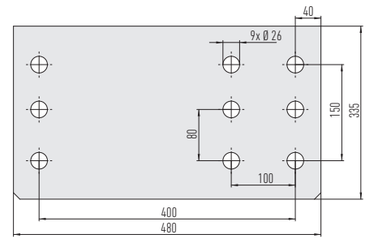
Axle type	Axle cross-section Front axle (mm)	Axle cross-section Rear axle (mm)	Static suspension unit load (kg)		Brake	Wheel connection	Type code
			40 km/h	60 km/h			
GSBW (LA) 7006/7008*							
GSBW 7006	90	90	13.000	12.000	unbraked	6 x M18 x 1,5 – 160/205	56.67.05-1-
GSBW 7006	90	90	13.000	12.000	N 3411	6 x M18 x 1,5 – 160/205	56.67.05-2-
GSBW 7008	90	90	13.000	12.000	unbraked	8 x M20 x 1,5 – 220/275	56.67.05-3-
GSBW 7008	90	90	13.000	12.000	N 3411	8 x M20 x 1,5 – 220/275	56.67.05-4-
GSBW (LA) 9008/9010*							
GSBW 9008	110 x 14	110 x 14	17.000	16.000	unbraked	8 x M20 x 1,5 – 220/275	56.76.05-1-
GSBW 9008	110 x 14	110 x 14	17.000	16.000	N 3411-1	8 x M20 x 1,5 – 220/275	56.76.05-2-
GSBW 9008	110 x 14	110 x 14	17.000	16.000	N 4012-4	8 x M20 x 1,5 – 220/275	56.76.05-3-
GSBW 9010	110 x 14	110 x 14	17.000	16.000	unbraked	10 x M22 x 1,5 – 280/335	56.76.05-4-
GSBW 9010	110 x 14	110 x 14	17.000	16.000	N 4012-4	10 x M22 x 1,5 – 280/335	56.76.05-6-
GSBW (LA) 11008/11010							
GSBW 11008	120 x 10(15)	120 x 10(15)	20.000	18.000	unbraked	8 x M20 x 1,5 – 220/275	56.88.05-1-
GSBW 11008	120 x 10(15)	120 x 10(15)	20.000	18.000	N 4012	8 x M20 x 1,5 – 220/275	56.88.05-2-
GSBW 11008	120 x 10(15)	120 x 10(15)	20.000	18.000	FL 4112	8 x M20 x 1,5 – 220/275	56.88.05-3-
GSBW 11010	120 x 10(15)	120 x 10(15)	20.000	18.000	unbraked	10 x M22 x 1,5 – 280/335	56.88.05-4-
GSBW 11010	120 x 10(15)	120 x 10(15)	20.000	18.000	N 4012	10 x M22 x 1,5 – 280/335	56.88.05-5-
GSBW 11010	120 x 10(15)	120 x 10(15)	20.000	18.000	FL 4112	10 x M22 x 1,5 – 280/335	56.88.05-6-
GSBW 11010	120 x 10(15)	120 x 10(15)	20.000	18.000	FL 4118	10 x M22 x 1,5 – 280/335	56.88.05-7-
GSBW (LL) 12010							
GSBW 12010	150 x 10(16)	150 x 10(16)	26.000	24.000	unbraked	10 x M22 x 1,5 – 280/335	56.72.05-1-
GSBW 12010	150 x 10(16)	150 x 10(16)	26.000	24.000	FL 4118	10 x M22 x 1,5 – 280/335	56.72.05-2-

* The list of options does not apply for these versions. Variants available on request.
Track widths, spring centres on request.
Axle loads dependent on the ratio track / spring centre and the tyres.
26 tonnes (Heavy-Duty version) is only possible with reinforced support and spring (HD) and with steering axle.

List of Options

1	Spring mounting kit	
Code	Designation	Representation / description
1	F0 spring mounted upon the axle	
2	FU spring mounted below the axle	

2	RS – Wheel base (mm)	
Code	Designation	Representation / description
1	1.450	–
2	1.540	Available up to a load of 20 tonnes
3	1.600	–
4	1.900	–

3	Head plate – Hole pattern	
Code	Designation	Representation / description
0	without drilled holes	
1	with drilled holes	

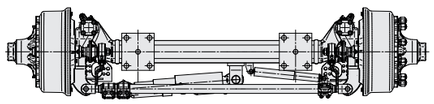
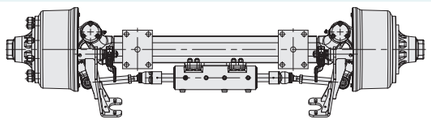
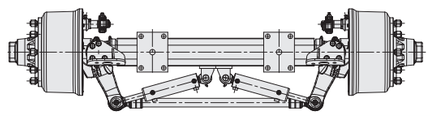
List of Options

4	FH - Ride height (mm) — up to 20 tonnes										
Code	Designation	Representation / description									
	Wheel base (spring) / hanger bracket height	1450		1540		1600		1900			
		FU	FO	FU	FO	FU	FO	FU	FO	—	—
1	300	—	—	154	374	—	—	—	—	—	—
2	370	231	443	224	444	231	454	240	464	—	—
3	400	261	473	254	474	261	484	270	494	—	—

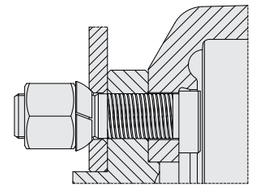
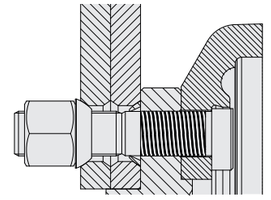
4	FH — Ride height (mm) — up to 20 - 26 tonnes										
	Wheel base (spring) / hanger bracket height	1450		1600		1600 HD		1900		1900 HD	
		FU	FO	FU	FO	FU	FO	FU	FO	FU	FO
1	400	202	465	219	476	—	—	223	486	—	—
2	430	232	495	249	506	—	—	253	517	—	—
3	430 HD	232	495	—	—	240	505	—	—	224	495
4	470	272	535	287	546	—	—	291	557	—	—
5	530	332	—	347	—	—	—	353	—	—	—
6	530 HD	332	—	—	—	340	—	—	—	322	—

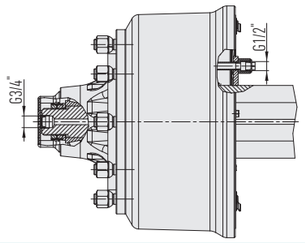
26 tonnes (Heavy-Duty version) is only possible with reinforced support and spring (HD) and with steering axle.

6	Version	
Code	Designation	Representation
1	Rigid axle — rigid axle not possible with wheel base of 1.900 mm	—
2	Rigid axle — steering axle	—

7	Steering axle		
Code	Designation	Description	Representation
0	without	—	—
1	Self-steering axle	Locking cylinder — only up to 12 tonnes axle load	
2	Self-steering axle Self-steering	Combination cylinder — possible only for types GS 11010 (8) and GS 12010	
3	Self-steering axle Forced-steering	Combination cylinder — possible only for types GS 11010 (8) and GS 12010	
4	Forced-steering axle	Possible only for types GS 11010 (8) and GS 12010	

8	Brake lever	
Code	Designation	Representation / description
1	Manual slack adjuster	The use of manual slack adjuster or automatic slack adjuster depends on the brake cylinder bracket solution, the tyre size and the free space. Should be checked in the 3D model.
2	Automatic slack adjuster	

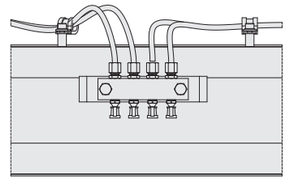
9	Twin tyres		
Code	Designation	Description	Representation
0	without	—	
1	with	possible only for types GS 11010 (8) and GS 12010	

10	Preparation for central tyre inflation (CTIS)		
Code	Designation	Description	Representation
0	without	—	
1	with	possible only for types GS 11010 (8) and GS 12010	

11	Sensor — SDS/ABS — Rigid axle	
Code	Designation	Representation / description
0	without	—
A-	with	possible sensors SDS/ABS — see page 107

12	Sensor — SDS/ABS — Steering axle	
Code	Designation	Representation / description
0	without	—
A-	with	possible sensors SDS/ABS — see page 107

13	Sensor — Steering angle	
Code	Designation	Representation / description
0	without	—
A-	with	possible sensors — see page 109 / possible only for types GS 11010 (8) and GS 12010

14	Central lubrication system	
Code	Designation	Representation / description
0	without	—
1	with (for specific lubrication points, further consultation is necessary)	

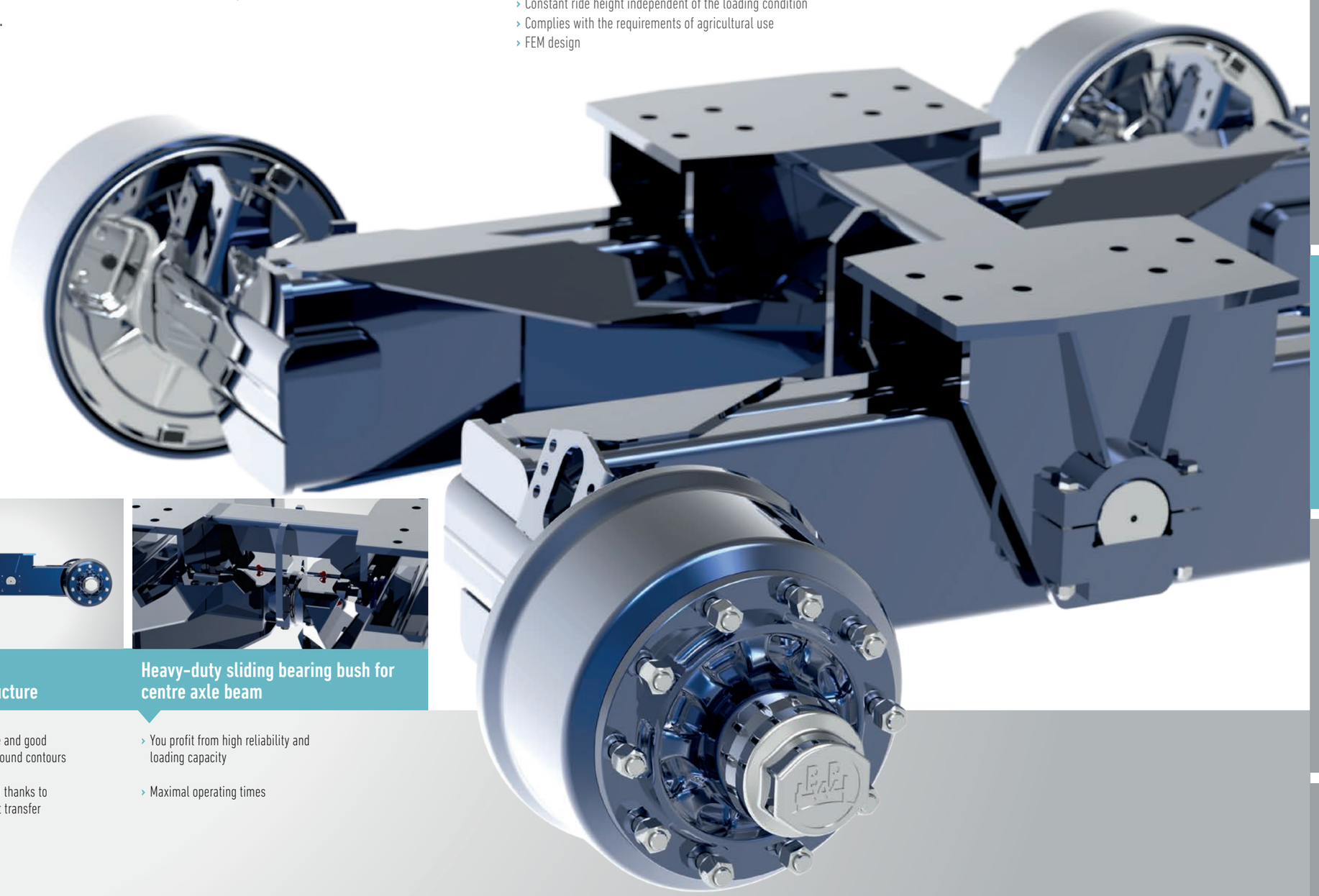
15	Brake cylinder	
Code	Designation	Representation / description
0	without	—
1	with	The size of the brake cylinder is determined by the brake calculation

Pendle suspension unit
Infinite power

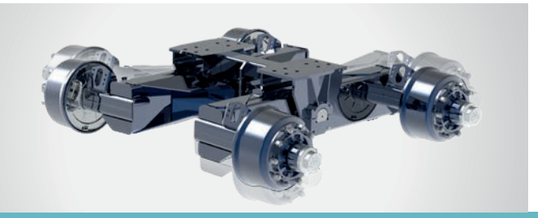
BPW pendle suspension units are characterised by a very high level of side-independent equalisation. This allows the ride height to stay the same even with different loads. Pendle suspension units are suitable for both off-road and on-road applications.

Other features

- Constant ride height independent of the loading condition
- Complies with the requirements of agricultural use
- FEM design

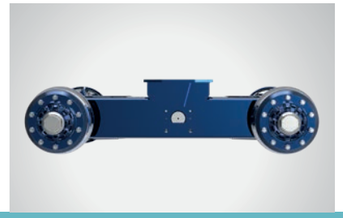


Benefits that convince



High level of equalisation on both sides

- Low drag resistance and good adaptation to the ground contours
- Rolling stability in difficult off-road applications



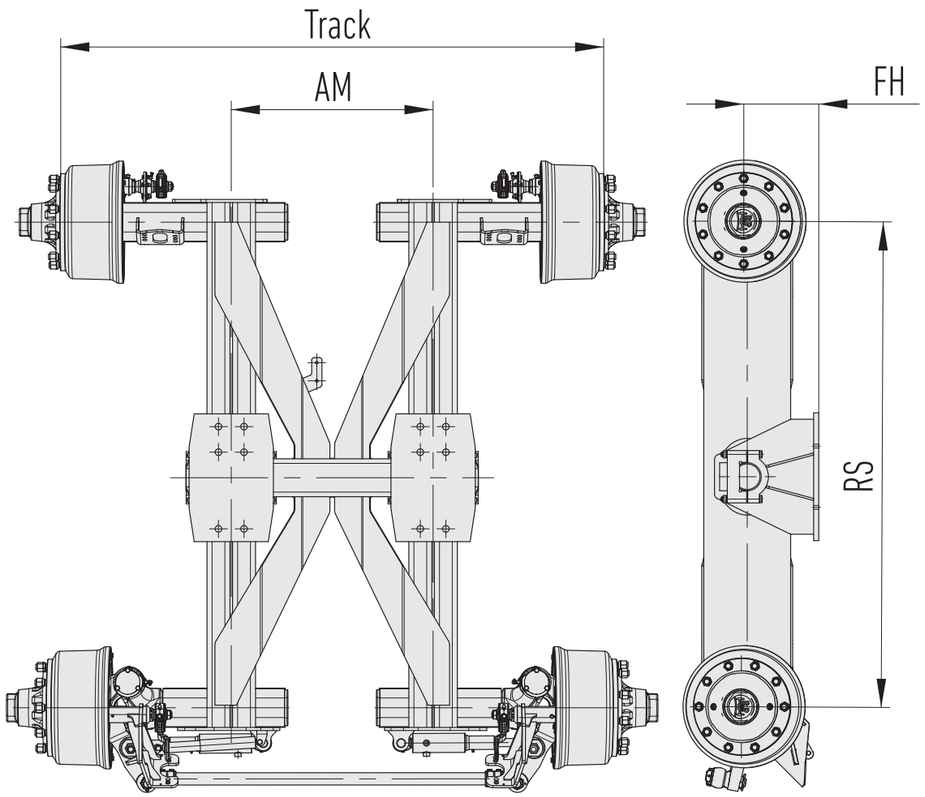
Asymmetrical pendulum structure

- Low drag resistance and good adaptation to the ground contours
- No braking overload thanks to the optimum weight transfer

Heavy-duty sliding bearing bush for centre axle beam

- You profit from high reliability and loading capacity
- Maximal operating times

Pendle suspension unit

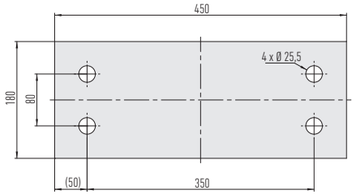
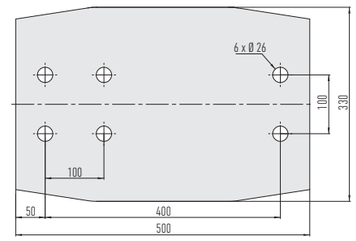


Axle type	Axle cross-section (mm)	Static axle unit load		Brake	Ride height FH (mm)	Wheel connection	Type code
		25 km/h	40 km/h				
GSSTP(LS) 8008/8010							
GSSTP 8008	100	16.000	14.000	unbraked	284	8 x M20 x 1,5 - 220/275	56.70.06-1-
GSSTP 8008	100	16.000	14.000	N 4008-4	284	8 x M20 x 1,5 - 220/275	56.70.06-2-
GSSTP 8008	100	16.000	14.000	N 3411	284	8 x M20 x 1,5 - 220/275	56.70.06-3-
GSSTP 8010	100	16.000	14.000	unbraked	284	10 x M22 x 1,5 - 280/335	56.70.06-4-
GSSTP 8010	100	16.000	14.000	N 4008-4	284	10 x M22 x 1,5 - 280/335	56.70.06-5-
GSSTP(LS) 11008/11010							
GSSTP 11008	120 x 10(15)	21.000	20.000	unbraked	280	8 x M20 x 1,5 - 220/275	56.88.06-1-
GSSTP 11008	120 x 10(15)	21.000	20.000	FL 4112	280	8 x M20 x 1,5 - 220/275	56.88.06-2-
GSSTP 11010	120 x 10(15)	21.000	20.000	unbraked	280	10 x M22 x 1,5 - 280/335	56.88.06-3-
GSSTP 11010	120 x 10(15)	21.000	20.000	FL 4112	280	10 x M22 x 1,5 - 280/335	56.88.06-4-
GSSTP(LS) 12010							
GSSTP 12010	150 x 16	27.000	27.000	unbraked	280	10 x M22 x 1,5 - 280/335	56.72.06-1-
GSSTP 12010	150 x 16	27.000	27.000	FL 4118	280	10 x M22 x 1,5 - 280/335	56.72.06-2-

Track widths on request.
Axle loads dependent on the ratio track / spring centre and the tyres.

List of Options

2	RS – Wheel base (mm) – GSSTP 8008 (10)	
Code	Designation	Representation / description
1	1.350	–
2	1.500	–
2	**RS – Wheel base (mm) – GSSTP 11008 (10)**	
Code	Designation	Representation / description
1	1.300	max. axle unit load 18 tonnes at 40 km/h – possible with hole pattern 2
2	1.550	–
2	**RS – Wheel base (mm) – GSSTP 12010**	
Code	Designation	Representation / description
1	1.550	–
2	1.900	–

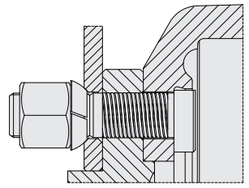
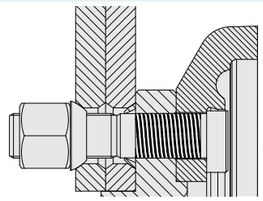
3	Head plate – Hole pattern	
Code	Designation	Representation / description
1	without drilled holes	
2	with borehole for GSTP 8008 (10) / 11008 (10)	
3	with borehole for GSTP 11008 (10) / 12010	

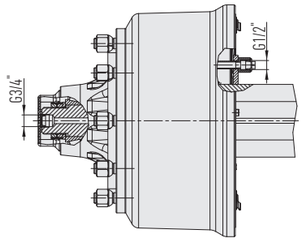
List of Options

5	AM — support centre (mm)	
Code	Designation	Representation / description
1	1.100	Possible only for type GSSTP 8008 (10)
2	790	
3	890	
4	other dimension	Check required

6	Version	
Code	Designation	Representation / description
1	rigid	Rigid axle— rigid axle not possible with wheel base of 1.900 mm
2	steered	Rigid axle — steered

7	Steering axle	
Code	Designation	Representation / description
0	without	—
1	Self-steering axle	—
2	Forced-steering axle	—

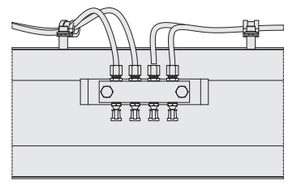
9	Twin tyres		
Code	Designation	Description	Representation
0	without	—	
1	with	possible only for types GS 11010 (8) and GS 12010	

10	Preparation for central tyre inflation (CTIS)		
Code	Designation	Representation / description	
0	without	—	
1	with	possible only for types GS 11010 (8) and GS 12010	

11	Sensor — SDS/ABS — Rigid axle	
Code	Designation	Representation / description
0	without	—
A-	with	possible sensors SDS/ABS — see page 107

12	Sensor — SDS/ABS — Steering axle	
Code	Designation	Representation / description
0	without	—
A-	with	possible sensors SDS/ABS — see page 107

13	Sensor — Steering angle	
Code	Designation	Representation / description
0	without	—
A-	with	possible sensors — see page 109 possible only for types GS 11010 (8) and GS 12010

14	Central lubrication system	
Code	Designation	Representation / description
0	without	—
1	with (for specific lubrication points, further consultation is necessary)	

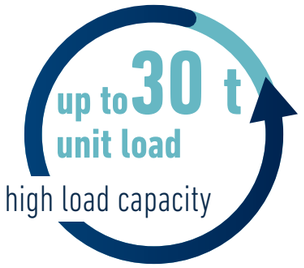
15	Brake cylinder	
Code	Designation	Representation / description
0	without	—
1	with	The size of the brake cylinder is determined by the brake calculation

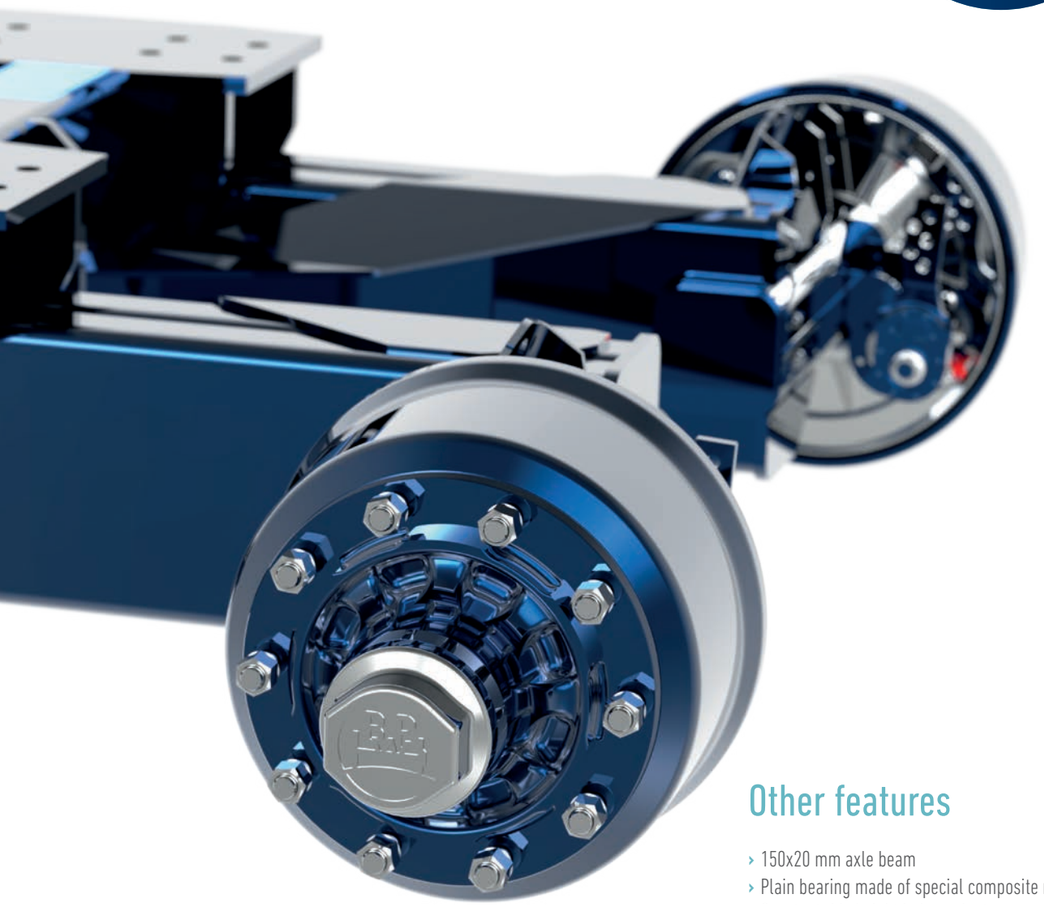
AGRO Robust
Simply indestructible

The 30 t pendle suspension unit from BPW Agrar. Bigger. Stronger. Robuster. For extremely difficult roadwork and off-road use BPW offers a strengthened and reliable heavy-duty pendle suspension unit. With the AGRO Robust you opt for BPW quality for the highest loads.

Benefits that convince

- You profit from the high load capacity through the strengthened axle beam and the special design
- No downtime thanks to the low maintenance sliding bearing
- The highest reliability due to an annealed centre axle beam
- Outstanding driving characteristics thanks to the asymmetrical pendulum structure





Other features

- 150x20 mm axle beam
- Plain bearing made of special composite material
- Constant ride height independent of the loading condition

Axle type	Axle cross-section (mm)	Version	Track	Support centre AM (mm)	Static axle load 40 km/h	Brake	Ride height FH (mm)	Wheel connection	Type code
GSSTP 14010	150 x 20	A	1.900	790	30.000	FL 4118	280	M22 x 1,5 – 280/335	56.74.06-1-
GSSTP 14010	150 x 20	B	1.950	790	30.000	FL 4118	280	M22 x 1,5 – 280/335	56.74.06-2-
GSSTP 14010	150 x 20	A	2.050	890	30.000	FL 4118	280	M22 x 1,5 – 280/335	56.74.06-3-

Axle loads dependent on the ratio track / spring centre and the tyres.
Track widths on request.
Steered version on request.

List of Options

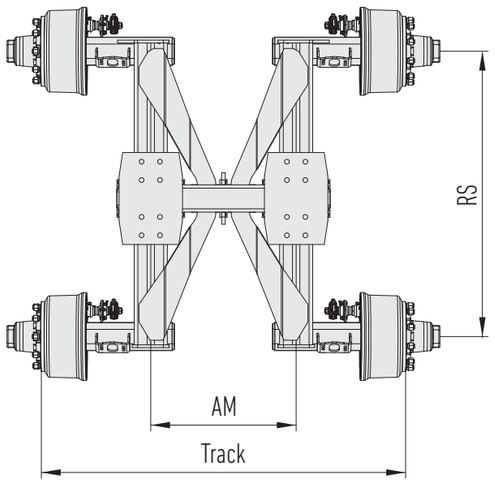
10	Preparation for central tyre inflation (CTIS)	
Code	Designation	Representation / description
0	without	–
1	with	–

11	Sensor – SDS/ABS – Rigid axle	
Code	Designation	Representation / description
0	without	–
A-	with	possible sensors SDS/ABS – see page 107

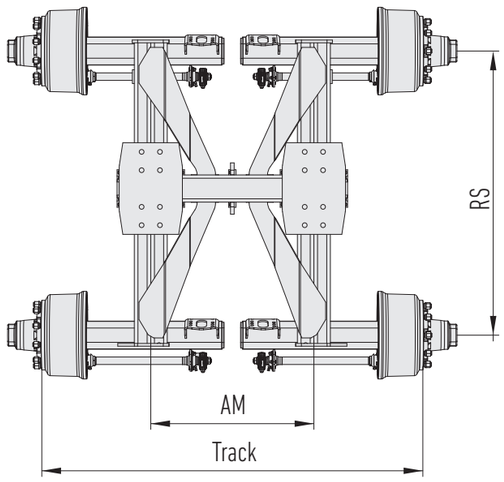
14	Central lubrication system	
Code	Designation	Representation / description
0	without	–
1	with	–

15	Brake cylinder	
Code	Designation	Representation / description
0	without	–
1	with	The size of the brake cylinder is determined by the brake calculation

Version A



Version B



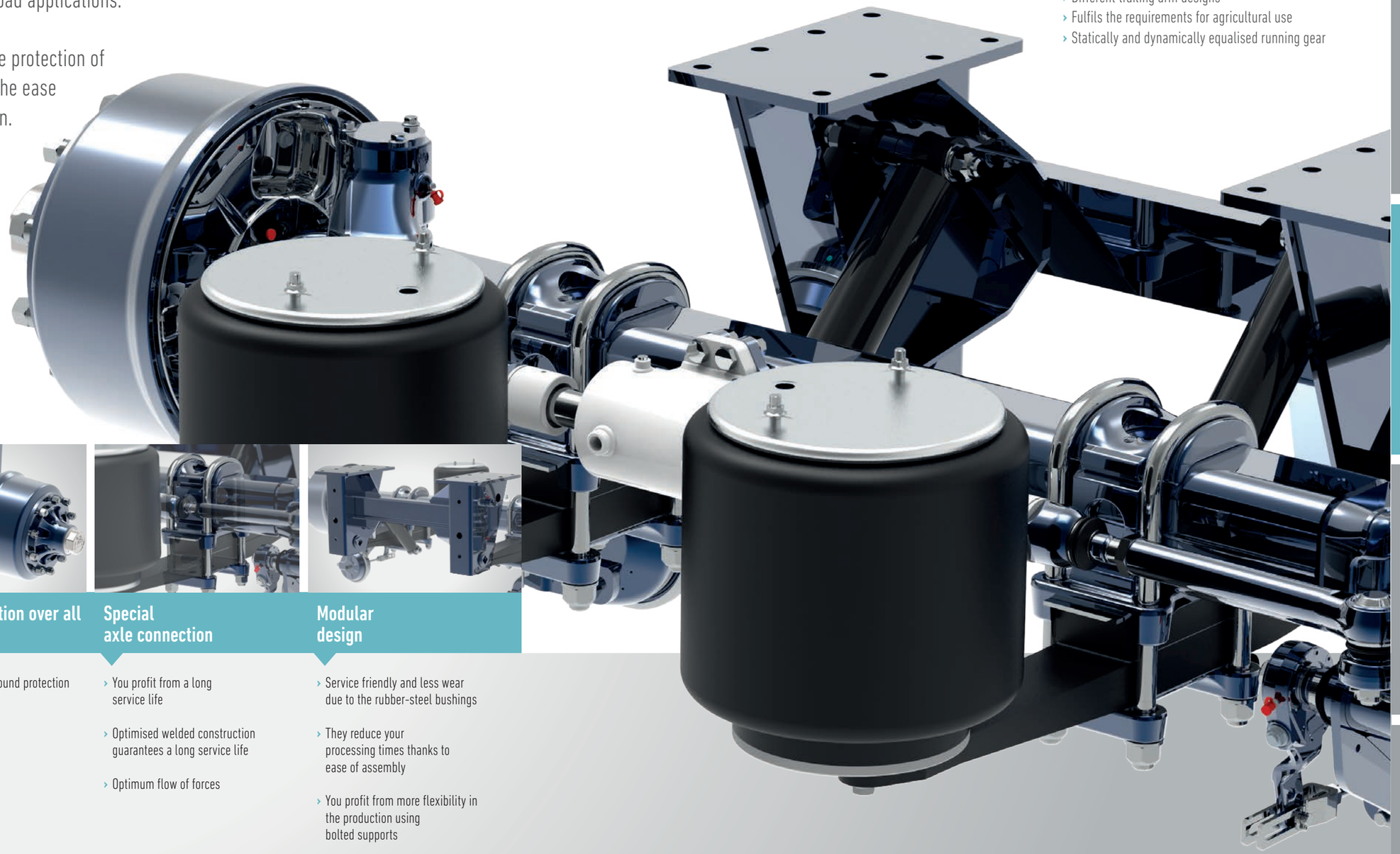
Air suspension unit
Technology in completion

With our air suspension you opt for proven and tested BPW technology – and the typical BPW quality, that stands for high service life and safety. Due to the large spring deflection and the high level of equalisation between the axles BPW air suspension units guarantee a very high driving comfort both in on-road and off-road applications.

The BPW air suspension contributes to the protection of frame, chassis and load. You experience the ease of maintenance due to the modular design.

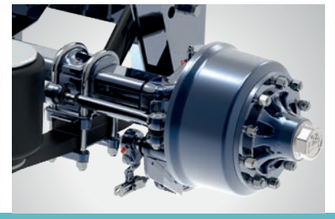
Other features

- Constant ride height in different loading conditions
- Universal use due to individual modules
- Different trailing arm designs
- Fulfils the requirements for agricultural use
- Statically and dynamically equalised running gear



Benefits that convince





Higher equalisation between the axles

- You can enjoy an outstanding drive comfort for your vehicles
- Optimum adaptation to the ground contours
- Protects the chassis

Even load distribution over all wheels

- You achieve maximum ground protection with your vehicle
- Even wear of tyres on all wheels

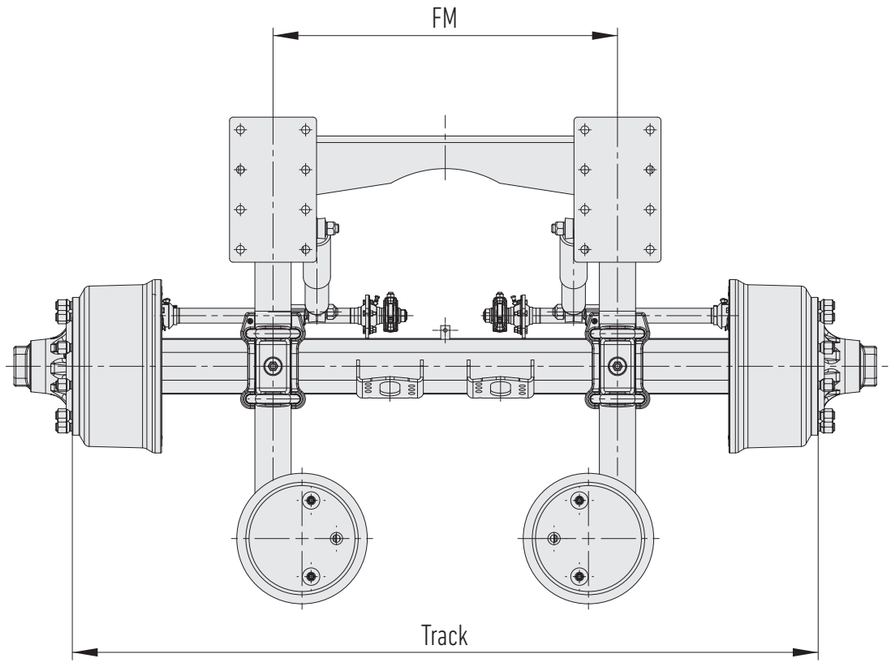
Special axle connection

- You profit from a long service life
- Optimised welded construction guarantees a long service life
- Optimum flow of forces

Modular design

- Service friendly and less wear due to the rubber-steel bushings
- They reduce your processing times thanks to ease of assembly
- You profit from more flexibility in the production using bolted supports
- Robust supports for a long service life

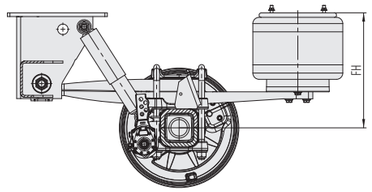
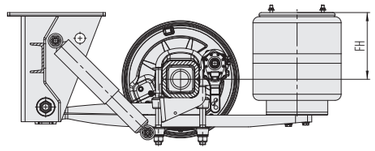
Air suspension unit

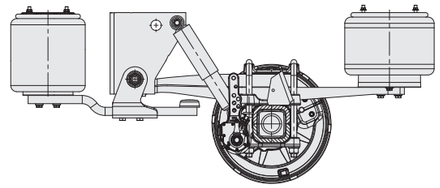


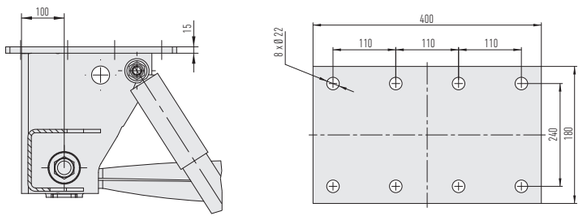
Axle type	Axle cross-section (mm)	Static axle load (kg)			Brake	Wheel connection	Type code
		40 km/h	60 km/h	80 km/h			
				GSSLO/U 9008/9010			
GSSLO(U) 9008	110 x 14	8.500	8.000	–	unbraked	8 x M20 x 1,5 – 220/275	56.76.01-1-
GSSLO(U) 9008	110 x 14	8.500	8.000	–	N 3411-1	8 x M20 x 1,5 – 220/275	56.76.01-2-
GSSLO(U) 9008	110 x 14	8.500	8.000	–	N 4012-4	8 x M20 x 1,5 – 220/275	56.76.01-3-
GSSLO(U) 9010	110 x 14	8.500	8.000	–	unbraked	10 x M22 x 1,5 – 280/335	56.76.01-4-
GSSLO(U) 9010	110 x 14	8.500	8.000	–	N 3411-1	10 x M22 x 1,5 – 280/335	56.76.01-5-
GSSLO(U) 9010	110 x 14	8.500	8.000	–	N 4012-4	10 x M22 x 1,5 – 280/335	56.76.01-6-
				GSSLO/U 11008/11010			
GSSLO(U) 11008	120 x 15	10.000	9.000	–	unbraked	8 x M20 x 1,5 – 220/275	56.88.01-1-
GSSLO(U) 11008	120 x 15	10.000	9.000	–	N 4012	8 x M20 x 1,5 – 220/275	56.88.01-2-
GSSLO(U) 11008	120 x 15	10.000	9.000	–	FL 4112	8 x M20 x 1,5 – 220/275	56.88.01-3-
GSSLO(U) 11010	120 x 15	10.000	9.000	–	unbraked	10 x M22 x 1,5 – 280/335	56.88.01-4-
GSSLO(U) 11010	120 x 15	10.000	9.000	–	N 4012	10 x M22 x 1,5 – 280/335	56.88.01-5-
GSSLO(U) 11010	120 x 15	10.000	9.000	–	FL 4112	10 x M22 x 1,5 – 280/335	56.88.01-6-
				GSSLO/U 12010			
GSSLO(U) 12010	150 x 16	13.000	12.000	–	unbraked	10 x M22 x 1,5 – 280/335	56.72.01-1-
GSSLO(U) 12010	150 x 16	13.000	12.000	–	FL 4118	10 x M22 x 1,5 – 280/335	56.72.01-2-
GSSLO(U) 12010	150 x 16	–	–	12.000	SN4220	10 x M22 x 1,5 – 280/335	56.72.01-3-
				GSSLO/U 14010			
GSSLO(U) 14010	150 x 16	14.000	14.000	–	unbraked	10 x M22 x 1,5 – 280/335	56.74.01-1-
GSSLO(U) 14010	150 x 16	14.000	14.000	–	FL 4118	10 x M22 x 1,5 – 280/335	56.74.01-2-
GSSLO(U) 14010	150 x 20	14.000	14.000	–	unbraked	10 x M22 x 1,5 – 280/335	56.74.01-3-
GSSLO(U) 14010	150 x 20	14.000	14.000	–	FL 4118	10 x M22 x 1,5 – 280/335	56.74.01-4-

Track widths, spring centres on request.
Axle loads dependent on the ratio track / spring centre and the tyres.

List of Options

1	Spring mounting kit	
Code	Designation	Representation / description
1	SLO spring mounted upon the axle	
2	SLU spring mounted below the axle	

2	Lift axle	
Code	Designation	Representation / description
0	without	
1	with	

3	Head plate – Hole pattern	
Code	Designation	Representation / description
0	without	
1	with head plate	

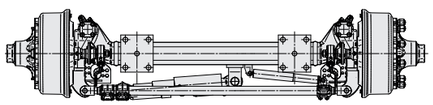
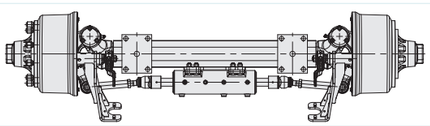
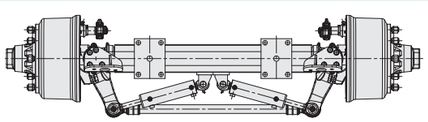
List of Options

4	FH — Ride height (mm) — GS 9000				
Code	Designation	Representation / description			
	Wheel base (spring)	SLO		SLU	
	hanger bracket height	without plate	with plate	without plate	with plate
1	184	395–425	–	190–225	–
2	268	425–505	–	225–305	–
3	268	455–505	–	205–305	–

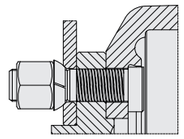
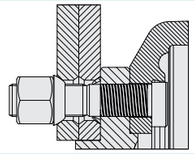
4	FH — Ride height (mm) — GS 11000				
	Wheel base (spring)	SLO		SLU	
	hanger bracket height	without plate	with plate	without plate	with plate
1	184	414–439	421–454	–	–
2	268	474–523	480–538	217–267	224–282
3	302	–	–	230–301	237–316
4	370	–	–	283–369	290–384

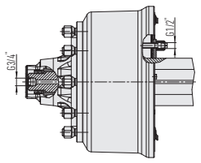
4	FH — Ride height (mm) — GS 12000/GS 14000				
	Wheel base (spring)	SLO		SLU	
	hanger bracket height	without plate	with plate	without plate	with plate
1	184	430–455	435–470	–	–
2	268	488–538	495–553	175–252	182–267
3	302	–	–	215–286	222–301
4	370	–	–	268–351	275–370

6	Version	
Code	Designation	Representation / description
1	1	rigid
2	2	steered

7	Steering axle		
Code	Designation	Description	Representation
0	without	–	–
1	Self-steering axle	Locking cylinder — only up to 12 tonnes axle load	
2	Self-steering axle Self-steering	Combination cylinder — possible only for types GS 11010 (8) and GS 12010	
3	Self-steering axle Forced-steering	Combination cylinder — possible only for types GS 11010 (8) and GS 12010	
4	Forced-steering axle	Possible only for types GS 11010 (8) and GS 12010	

8	Brake lever	
Code	Designation	Representation / description
1	Manual slack adjuster	The use of manual slack adjuster or automatic slack adjuster depends on the brake cylinder bracket solution, the tyre size and the free space. Should be checked in the 3D model.
2	Automatic slack adjuster	

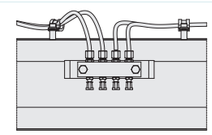
9	Twin tyres		
Code	Designation	Description	Representation
0	without	–	
1	with	not possible for type GS 9000	

10	Preparation for central tyre inflation (CTIS)		
Code	Designation	Representation / description	
0	without	–	
1	with	not possible for type GS 9000	

11	Sensor — SDS/ABS — Rigid axle	
Code	Designation	Representation / description
0	without	–
A-	with	possible sensors SDS/ABS — see page 107

12	Sensor — SDS/ABS — Steering axle	
Code	Designation	Representation / description
0	without	–
A-	with	possible sensors SDS/ABS — see page 107

13	Sensor – Steering angle	
Code	Designation	Representation / description
0	without	–
A-	with	possible sensors — see page 109 possible only for types GS 11010 (8) / GS 12010 / GS 14010

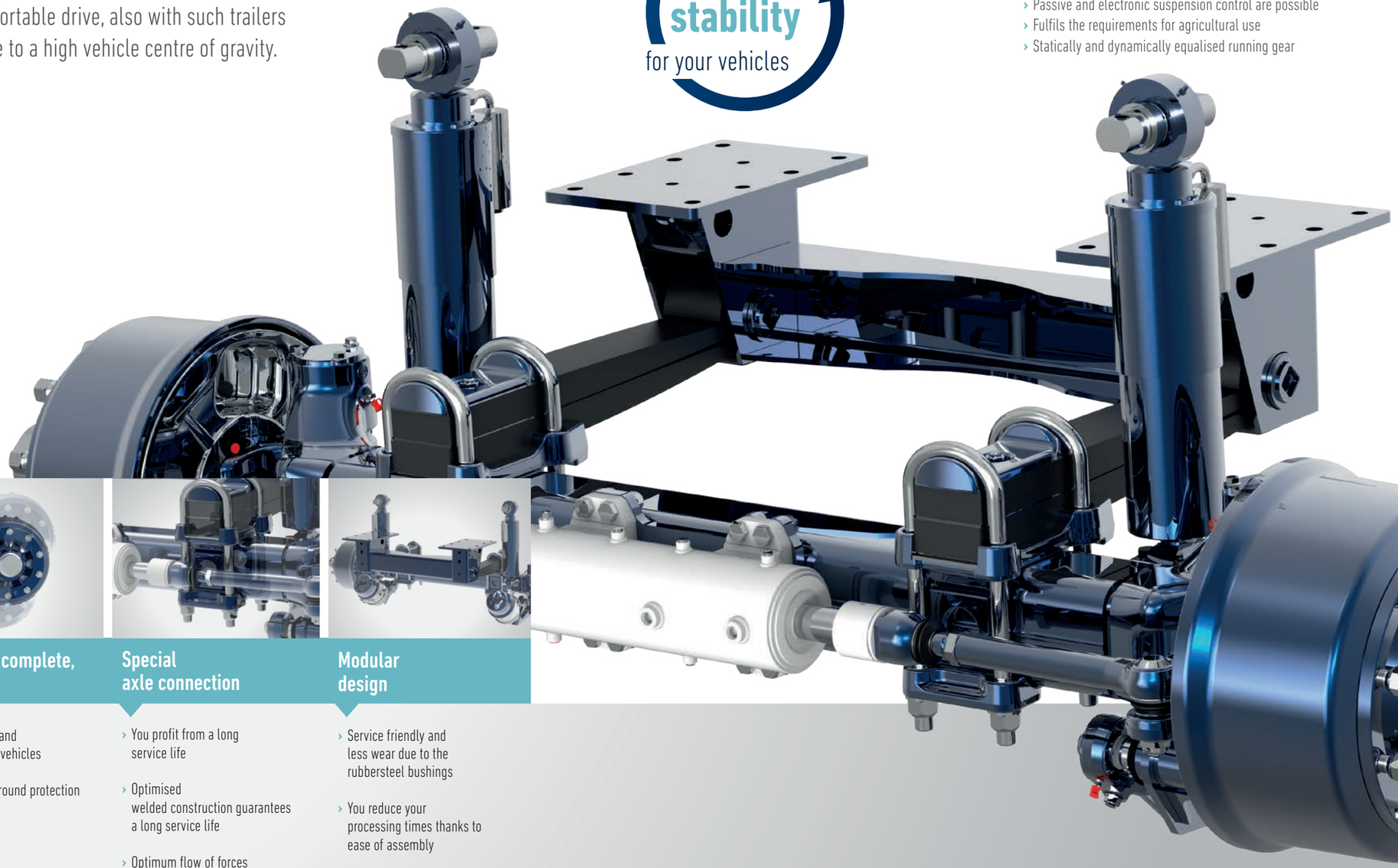
14	Central lubrication system		
Code	Designation	Description	Representation
0	without		–
1	with	not possible for type GS 9000 (for specific lubricating points further consultation is necessary)	

15	Brake cylinder	
Code	Designation	Representation / description
0	without	–
1	with	The size of the brake cylinder is determined by the brake calculation

Hydro-pneumatic modules
Only for perfectionists

BPW has running gears with hydro-pneumatic suspension available for vehicles with particular requirements on roll stability, driving safety and comfort. They are characterised by a large equalisation (approximately 270 mm) between the axles with equal axle load distribution. This guarantees a very safe and equally comfortable drive, also with such trailers that may have a critical driving behaviour due to a high vehicle centre of gravity.

incomparable **stability** for your vehicles



Other features

- Universal use due to individual modules
- Certified and tested components
- Passive and electronic suspension control are possible
- Fulfils the requirements for agricultural use
- Statically and dynamically equalised running gear

Benefits that convince



Wide supporting of the cylinder

- You achieve a high rolling stability with your vehicle



High spring travel and complete, dynamic equalisation

- Uncompromising driving safety and protection of the goods for your vehicles
- Low drag resistance and good ground protection

Special axle connection

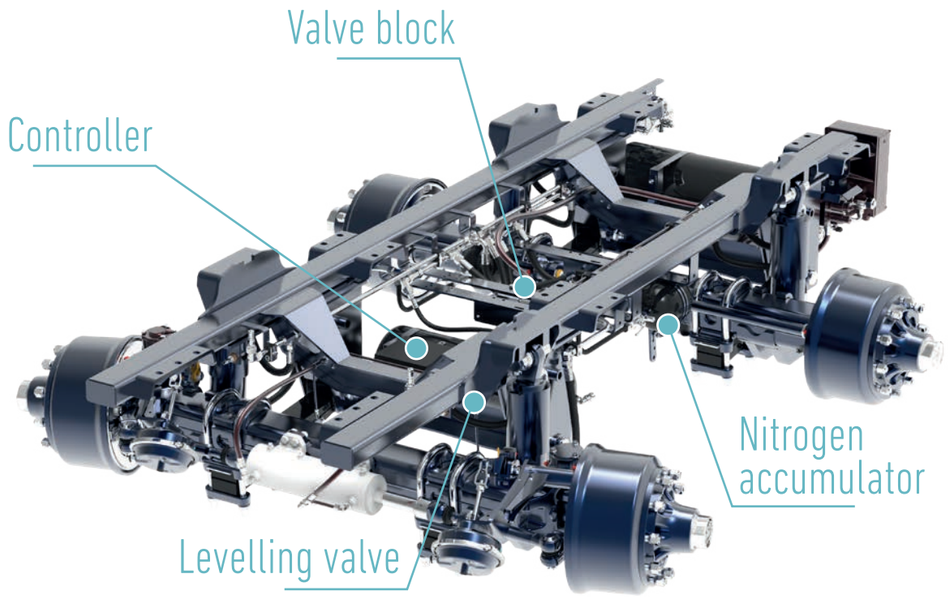
- You profit from a long service life
- Optimised welded construction guarantees a long service life
- Optimum flow of forces

Modular design

- Service friendly and less wear due to the rubbersteel bushings
- You reduce your processing times thanks to ease of assembly
- You profit from more flexibility in the production using bolted supports
- Robust supports for a long service life

eHP – active and electronic suspension control

The electronic control system for the proven hydro-pneumatic suspended BPW running gear permits a safe and comfortable driving behaviour - also in critical driving situations. The ride height is controlled electronically and in this manner, always remains constant, independent of the loading condition.

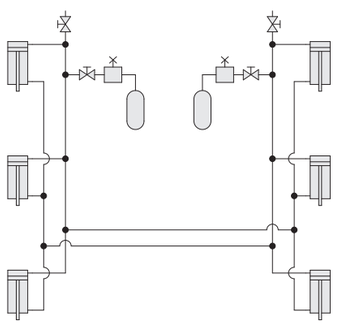


Functions

Especially with slurry tankers with attached soil tillage implements a constant ride height is decisive. independent of the loading condition. The active level control captures the current changes via a turning angle sensor and via the hydraulic control block and electrically regulates the adaptation to the defined ride height.

BPW suggestion for increasing the roll stability: Cross circuit

When driving through a bend, the outer side of the vehicle is loaded more by the lateral forces occurring. Due to the corresponding lines, the vehicle will always attempt to assume a parallel position to the ground.



Control options

Basic control
Ride heights changing with changes to the suspension load. No level control of the system. This solution can be used as dual circuit or cross circuit.
System components: Hydraulic accumulator; oil reservoir

Standard system
The ride height is always the same in a loaded or unloaded driving condition as the system checks the current position via angle sensors and equalises any changes by a respective readjustment of the oil level via the hydraulics. This solution is only implemented with cross circuit.

System components: Hydraulic accumulator; angle sensor; control block and controller

Premium system
The ride height is always the same in a loaded or unloaded driving condition as the system checks the current position via angle sensors and according to this position, readjusts the oil level in the hydraulic system and thus the ride height. This solution is only implemented with cross circuit.

With a tridem vehicle, the first axle can be controlled as lift axle. With a tandem vehicle, this is only possible if the rear axle is a rigid axle. If the pressure in the system is too high, the axle lift function is switched off automatically. With the starting aid function, the solution is possible for a tandem or tridem suspension unit.

System components: Hydraulic accumulator; angle sensor; control block and controller; valve for the traction assist; operating terminal

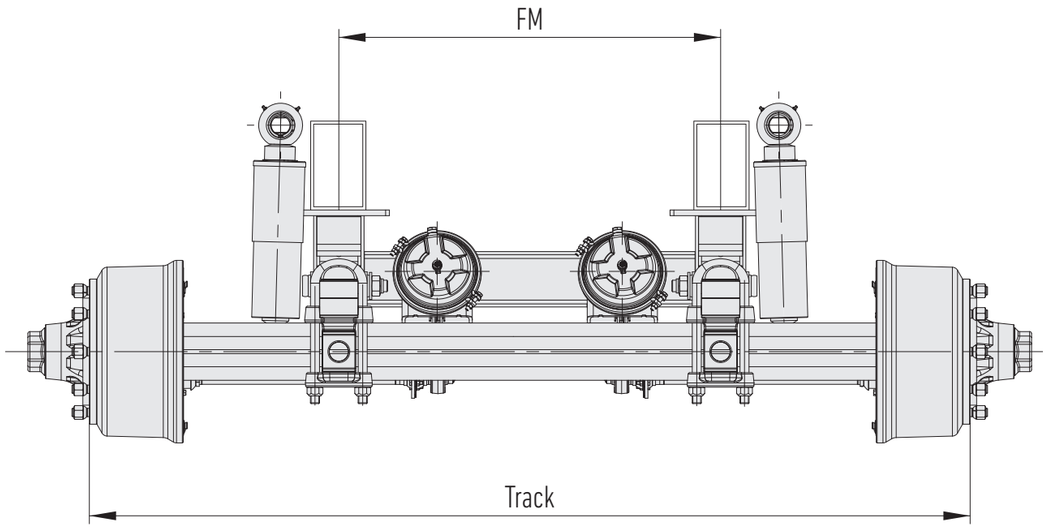
Benefit

- Improved drive comfort
- Increases driving safety
- Configurable additional functions
- Roll stability

Functions

- Levelling control
- Traction assist
- Lift axle function
- Three different ride heights to adjust

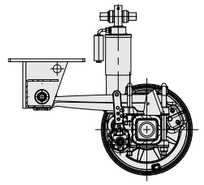
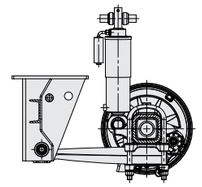
Hydro-pneumatic suspension unit

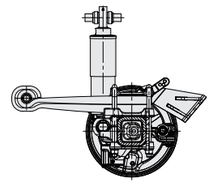
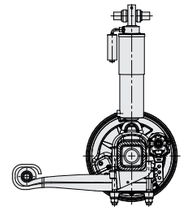


Axle type	Axle cross-section (mm)	Static axle load			Brake	Wheel connection	Type code
		40 km/h	60 km/h	80 km/h			
				GSOH(LA) 11008/11010			
GSOH 11008	120 x 15	10.000	9.000	–	unbraked	8 x M20 x 1,5 – 220/275	56.88.01-1-
GSOH 11008	120 x 15	10.000	9.000	–	FL 4112	8 x M20 x 1,5 – 220/275	56.88.01-2-
GSOH 11010	120 x 15	10.000	9.000	–	unbraked	10 x M22 x 1,5 – 280/335	56.88.01-3-
GSOH 11010	120 x 15	10.000	9.000	–	FL 4112	10 x M22 x 1,5 – 280/335	56.88.01-4-
				GSOH(LL) 12010			
GSOH 12010	150 x 16	13.000	12.000	–	unbraked	10 x M22 x 1,5 – 280/335	56.72.01-1-
GSOH 12010	150 x 16	13.000	12.000	–	FL 4118	10 x M22 x 1,5 – 280/335	56.72.01-2-
GSOH 12010	150 x 16	–	–	12.000	SN4220	10 x M22 x 1,5 – 280/335	56.72.01-3-
				GSOH(LL) 14010			
GSOH 14010	150 x 16	14.000	–	–	unbraked	10 x M22 x 1,5 – 280/335	56.74.01-1-
GSOH 14010	150 x 16	14.000	–	–	FL 4118	10 x M22 x 1,5 – 280/335	56.74.01-2-
GSOH 14010	150 x 20	14.000	–	–	unbraked	10 x M22 x 1,5 – 280/335	56.74.01-3-
GSOH 14010	150 x 20	14.000	–	–	FL 4118	10 x M22 x 1,5 – 280/335	56.74.01-4-

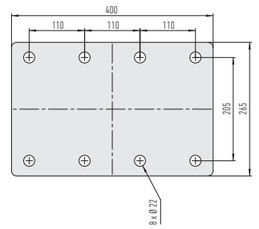
Track widths, spring centres on request.
Axle loads dependent on the ratio track / spring centre and the tyres.

List of Options

1	Spring mounting kit	
Code	Designation	Representation / description
1	FO spring mounted upon the axle	
2	FU spring mounted below the axle	

2	Cylinder position	
Code	Designation	Representation / description
1	HP cylinder in front of the axle	
2	HP cylinder on the axle	

This option must be coordinated with the engineering department.

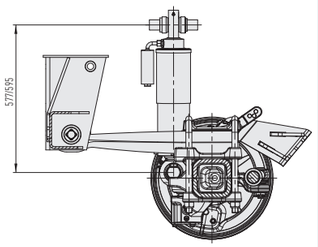
3	Head plate – Hole pattern	
Code	Designation	Representation / description
0	without head plate	–
1	with head plate	

List of Options

4	FH — Ride height (mm) — GS 11000				
Code	Designation	Representation / description			
	Version / Hanger bracket height	FO		FU	
		without plate	with plate	without plate	with plate
0	without support	Trailing arm is mounted on the axle			
1	184	336	351	–	–
2	268	420	435	–	–
3	302	–	–	–	–
4	370	–	–	–	–

4	FH — Ride height (mm) — GS 12000				
	Version / Hanger bracket height	FO		FU	
		without plate	with plate	without plate	with plate
0	without support	Trailing arm is mounted on the axle			
1	184	356	371	–	–
2	268	440	455	–	–
3	302	474	489	194	209
4	370	–	–	262	277

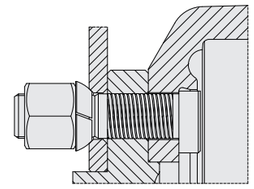
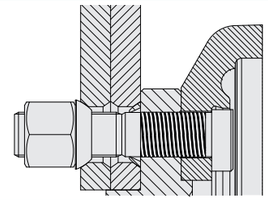
4	FH — Ride height (mm) — GS 14000				
	Version / Hanger bracket height	FO		FU	
		without plate	with plate	without plate	with plate
0	without support	Trailing arm is mounted on the axle			
1	184	378	393	–	–
2	268	462	477	–	–
3	302	–	–	172	187
4	370	–	–	240	255

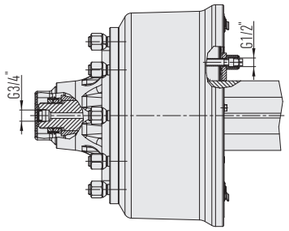
5	Cylinder installation dimension	
Code	Designation	Representation / description
1	577 mm STROKE: 185 mm	
2	595 mm STROKE: 210 mm	

6	Version	
Code	Designation	Representation / description
1	rigid	–
2	steered	–

7	Steering axle	
Code	Designation	Representation / description
0	without	–
1	Self-steering axle	Locking cylinder – not possible for type GS 14000
2	Self-steering axle	Combination cylinder
3	Forced-steering axle	Combination cylinder

8	Brake lever	
Code	Designation	Representation / description
1	Manual slack adjuster	The use of manual slack adjuster or automatic slack adjuster depends on the brake cylinder bracket solution, the tyre size and the free space. Should be checked in the 3D model.
2	Automatic slack adjuster	

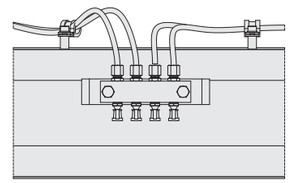
9	Twin tyres		
Code	Designation	Description	Representation
0	without	–	
1	with	–	

10	Preparation for central tyre inflation (CTIS)		
Code	Designation	Description	Representation
0	without	without	
1	with	with	

11	Sensor — SDS/ABS — Rigid axle	
Code	Designation	Representation / description
0	without	–
A-	with	possible sensors SDS/ABS – see page 107

12	Sensor — SDS/ABS — Steering axle	
Code	Designation	Representation / description
0	without	–
A-	with	possible sensors SDS/ABS – see page 107

13	Sensor — Steering angle	
Code	Designation	Representation / description
0	without	–
A-	with	possible sensors – see page 109, possible for types GS 12010 and GS 14010

14	Central lubrication system	
Code	Designation	Representation / description
0	without	–
1	with (for specific lubrication points, further consultation is necessary)	

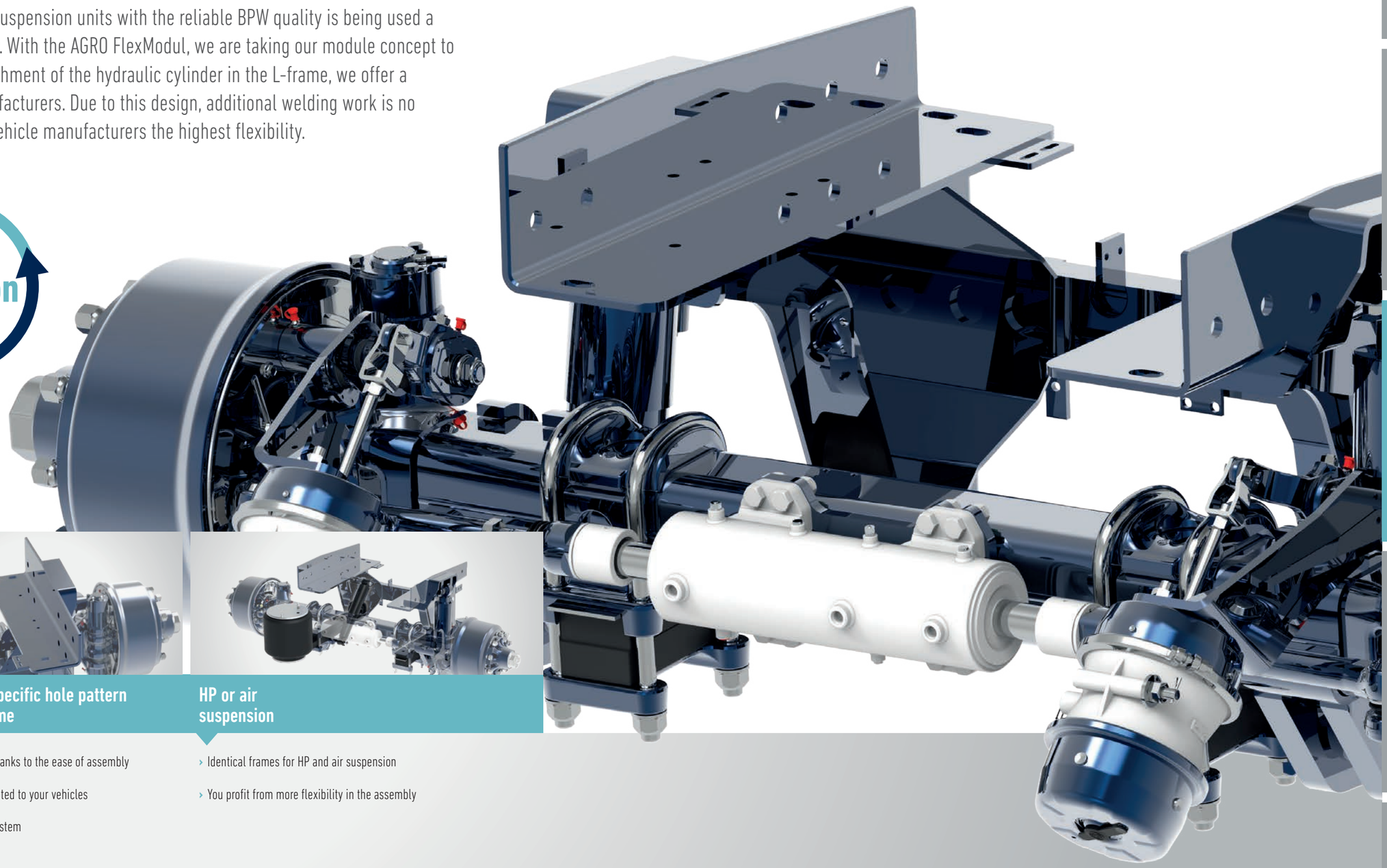
15	Brake cylinder	
Code	Designation	Representation / description
0	without	–
1	with	The size of the brake cylinder is determined by the brake calculation

AGRO FlexModule

More than just a module

The modular system of air and HP suspension units with the reliable BPW quality is being used a hundred thousand times until today. With the AGRO FlexModul, we are taking our module concept to the next level. With integrated attachment of the hydraulic cylinder in the L-frame, we offer a complete solution for vehicle manufacturers. Due to this design, additional welding work is no longer necessary which gives the vehicle manufacturers the highest flexibility.





Benefits that convince



Integrated HP attachment

- You do not need any additional welding work
- Optimum connection between the axle and chassis
- The FEM certified frame construction ensures a long service life



Customer-specific hole pattern in the L-frame

- You save time thanks to the ease of assembly
- Completely adapted to your vehicles
- Ready-to-use system

HP or air suspension

- Identical frames for HP and air suspension
- You profit from more flexibility in the assembly

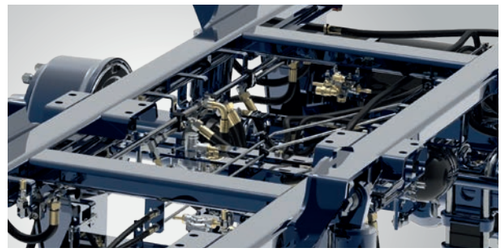
AGRO FlexFrame
The frame suspension unit

AGRO FlexFrame is BPW´s answer to tandem and tridem running gears. One concept for modern agricultural vehicle manufacturers. One application-specific designed frame.
Parallel cross members for tipper and plateau transporters, portal cross members for slurry tankers and silo transporters.

The unique feature is constituted by the standardised joining concept to the vehicle frames. The entire running gear is joined to the vehicle frame using 22 M20 bolts.
Thanks to this complete system with many different options, the delivery time is reduced significantly which gives the vehicle manufacturers a high level of flexibility. From the selection of the suspension system to the assembly of the brake system up to the complete integration of a hydraulic and electronic steering system, a lot is possible.



Portal cross member:
› optimised for slurry tankers



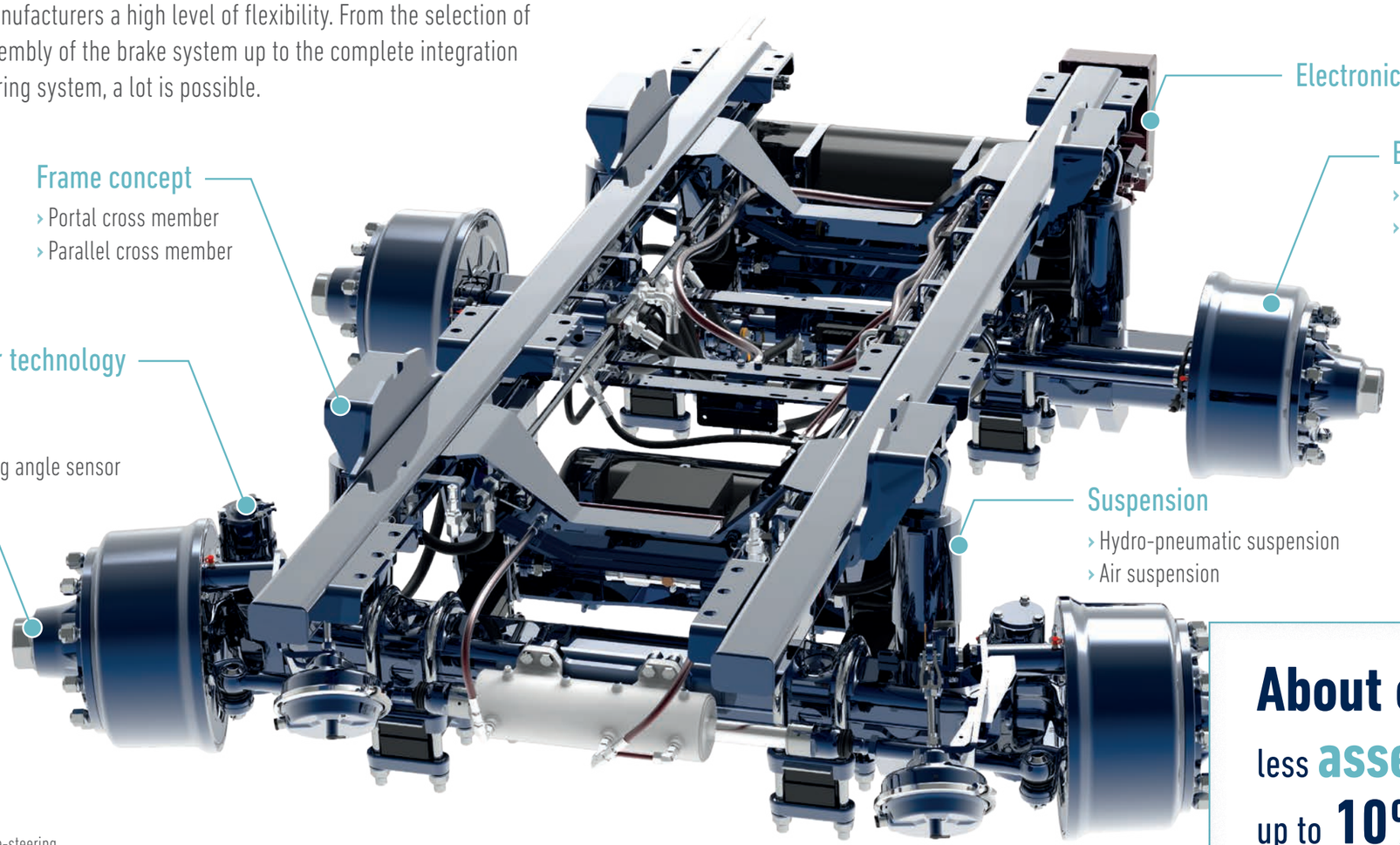
Parallel cross member:
› optimised for tippers

Ready to use
complete system

Frame concept
› Portal cross member
› Parallel cross member

Sensor technology
› SDS
› ABS
› Steering angle sensor

CTIS



Electronic steering system

Brakes
› Conventional
› EBS

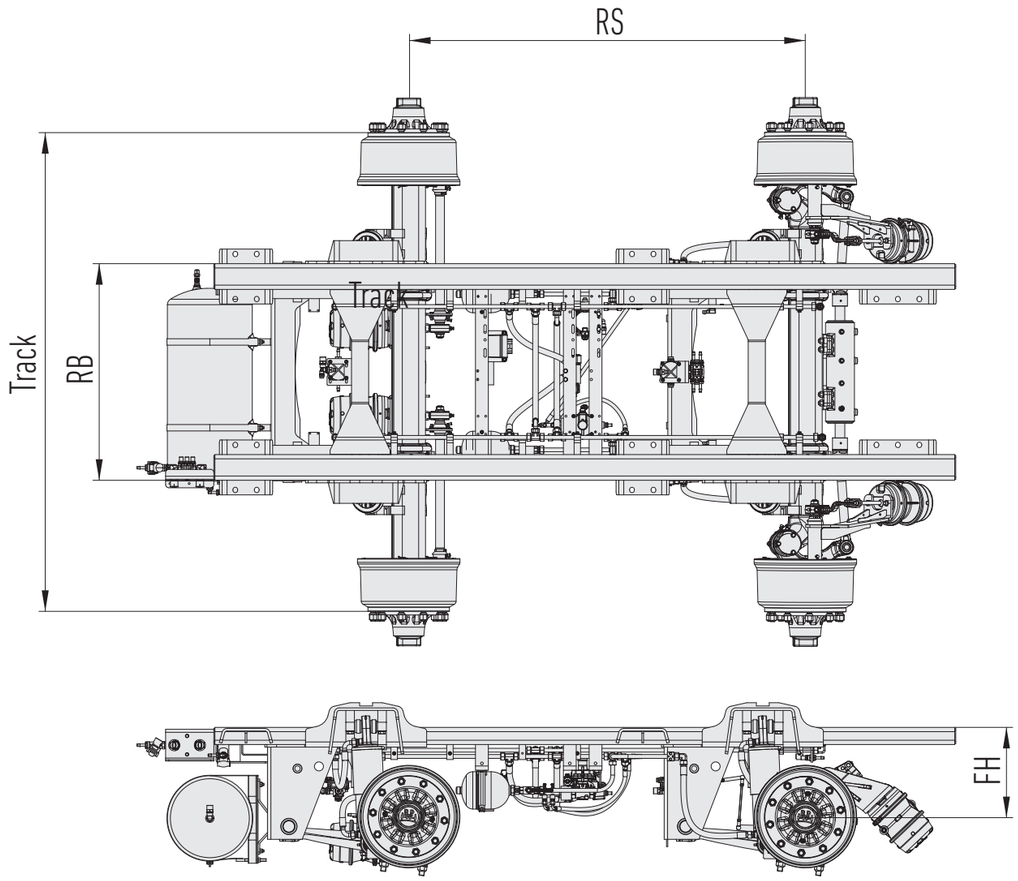
Suspension
› Hydro-pneumatic suspension
› Air suspension

Other features

› Shorter and flexible delivery time
› FEM-certified frame construction
› Documented threshold time measurement
› Increased flexibility thanks to self-steering / force-steering
› Upgrade with components from premium partners

About eight hours
less **assembly time,**
up to **10%**
lower costs

AGRO FlexFrame



Suspension	Version	Axle cross-section (mm)	Static axle unit load 40 km/h	Brake	Track (mm)	Wheel base RS (mm)	Frame width RB (mm)	Type code
HP	Tandem	150 x 16	24.000	FL 4118	2.225	1.850	1.010	56.72.08-R1-
HP	Tandem	150 x 16	24.000	FL 4118	2.200	2.000	970	56.72.08-R2-
HP	Tandem	150 x 16	24.000	FL 4118	2.100	2.000	870	56.72.08-R3-
Air	Tandem	150 x 16	24.000	FL 4118	2.225	1.850	1.010	56.72.02-R1-
Air	Tandem	150 x 16	24.000	FL 4118	2.150	1.850	1.010	56.72.02-R2-
Air	Tandem	150 x 16	24.000	FL 4118	2.050	1.850	835	56.72.02-R3-
HP	Tridem	150 x 16	36.000	FL 4118	2.200	1.850	970	56.72.08-R4-

AGRO FlexFrame tandem version is always manufactured with one rigid axle and one steering axle (AGRO Turn).
AGRO FlexFrame tridem version is always manufactured with one rigid axle and two steering axles (AGRO Turn).
Axle loads dependent on the ratio track / spring centre and the tyres.
Other versions available on request.

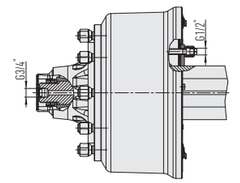
List of Options

1	HP suspension	
Code	Designation	Representation / description
0	without	–
1	HP Basic	Hydraulic accumulator; oil reservoir
2	eHP Standard	Hydraulic accumulator; angle sensor; control block and controller
3	eHP Premium	Hydraulic accumulator; angle sensor; control block and controller; valve for the traction assist; operating terminal

2	Air suspension	
Code	Designation	Representation / description
0	without	–
1	Basic	Air spring valve
2	Traction assist	Air suspension valve; solenoid valve; operating terminal
3	Lifting and lowering	Air suspension valve; solenoid valve; rotary slide valve

3	Brake system	
Code	Designation	Representation / description
0	without	without brake system and brake cylinder
1	conventional	Brake system and Tristop cylinder
2	EBS	EBS system and Tristop cylinder and AGS, EBS option must always be checked

4	Brake lever	
Code	Designation	Representation / description
1	Manual slack adjuster	–
2	Automatic slack adjuster	–

5	Preparation for central tyre inflation	
Code	Designation	Representation / description
0	without	–
1	with	

6	Sensor – SDS/ABS – Rigid axle	
Code	Designation	Representation / description
0	without	–
A-	with	possible sensors SDS/ABS – see page 107

7	Sensor – SDS/ABS – Steering axle	
Code	Designation	Representation / description
0	without	–
A-	with	possible sensors SDS/ABS – see page 107

8	Sensor – Steering angle	
Code	Designation	Representation / description
0	without	–
A-	with	possible sensors – see page 109

9	Electronic force-steering system	
Code	Designation	Representation / description
0	without	–
1	preparation only	Speed sensor and ABS sensor with exciter wheel 100 teeth on the rigid axle and ME steering angle sensor
2	with	Valve block, steering computer with die-cast housing and cable, heavy-duty angle encoder, adapter cable, diaphragm pressure switch and operator terminal

SENSOR TECHNOLOGY



Sensor technology
Innovation brought to the point

Following our philosophy, humans and machine form a perfect unit for whom nothing is impossible. To achieve this symbiosis, we have a forward-looking goal:
Our axles and units should become more smarter, intelligent and communicative.

In addition to the ongoing further development and improvement of our machine components, electronic components and their easy integration are also gaining an increasing significance. These components allow us to provide the vehicle manufacturer or the end customer with specific signals.

For us, it is important that the information of the running gear can be used for work.
The values determined when driving lead to a visible effect in use so that e.g. work can be planed in a better manner.

Our expertise

- Own sensor development: Speed sensor with direction of rotation detection or axle load sensor
- Complete ISOBUS capable weighing system with integrated algorithm and application
- End-of-Line - tested and certified products
- Ready to use electronic force-steering system by Mobil Elektronik
- Various test vehicles to test the newly developed electronic products in practice



Wheel sensors

Well rounded in every respect

Wheel sensors detect the rotating movement of the wheels. This information serves many safety and assistant systems as important control variable. With few exceptions, BPW axles and suspension units can be ordered optionally with ready mounted ABS or SDS*.

*Speed sensor with recognition of rotating direction (**S**peed and **D**irection of rotation **S**ensor)

ABS

The anti-lock brake system (ABS) ensures for a shorter braking distance, the best possible drive stability and steering properties - for tractors and trailers. Heavy braking is carried out without the wheels blocking which reduces tyre wear. High ABS functional reliability thanks to positioning the sensor in the bend neutral axle centre, no change of air gap at variable axle load.

SDS

The speed sensor with recognition of rotating direction is a product developed by BPW. It is an important element of the electronic forced steering system. The sensor signal can also be used for the optimisation of application rates. The to the requiremntes adapted sensor bracket protects the sensor against twisting. This offers a higher functional reliability.

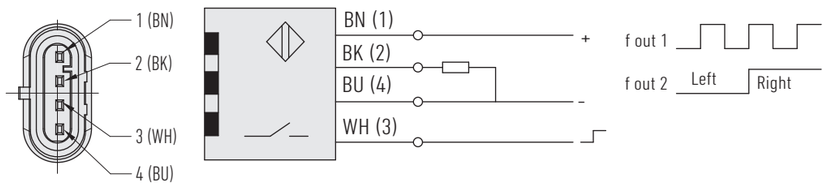
Benefits that convince

- Special bracket against twisting and other mechanical stress guaranties maximum reliability and service life
- Functional, even at lower speeds (> 1 km/h)
- BPW solution without additional effort for assembly

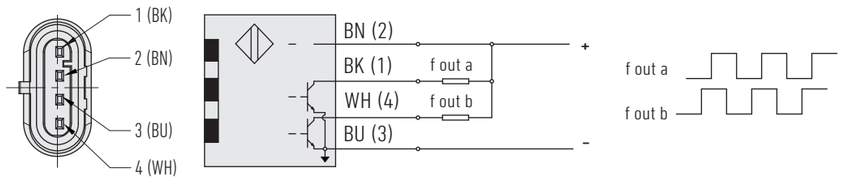
Other features

- Separate channels for speed and direction of rotation guarantee full detection (PNP)
- Compatible with all conventional forced steering systems
- Digital output for a clear signal

Type PNP: separate channels for speed and direction of rotation



Type NPN: direction of rotation should be detected by software technology



SDS technical specifications

	PNP	NPN
Output	4 wire PNP pulse output	4 wire NPN 2 channel with phase shift
Operating voltage	10–30 VDC	
Voltage drop	≤ 2,4 V	≤ 0,4 V
Maximum load current	200 mA	
No-load current	≤ 30 mA	
Usable switching frequency	5.000 Hz	
EMC durability	according to DIN EN 60947-5-2 2008-08	
Protection class	IP 67 according to DIN EN 60529	
Type of connection	400 mm cable with Superseal 4-pin	400 mm cable with Superseal 4-pin*

*Cable marked with yellow shrink hose.

Sensor matrix for rigid axle

Left	Right	Code
Z100 + ABS	0	A
Z100 + SDS	0	B
Z100 + ABS	Z100 + ABS	C
Z100 + SDS	Z100 + ABS	D
Z100 + SDS	Z100 + SDS	E
Z120 + ABS	0	F
Z120 + ABS	Z120 + ABS	G

Other options on request.

Sensor matrix for steering axle

Left	Right	Code
Z100 + SDS	0	A
Z100 + SDS	Z100 + SDS	B
Z100 + ABS	Z100 + ABS	C
Z120 + ABS	Z120 + ABS	D
Z100 + SDS + ABS	Z100 + SDS + ABS	E
Z120 + SDS + ABS	Z120 + SDS + ABS	F

Other options on request.



Adapter for the steering angle sensor
Perfectly integrated

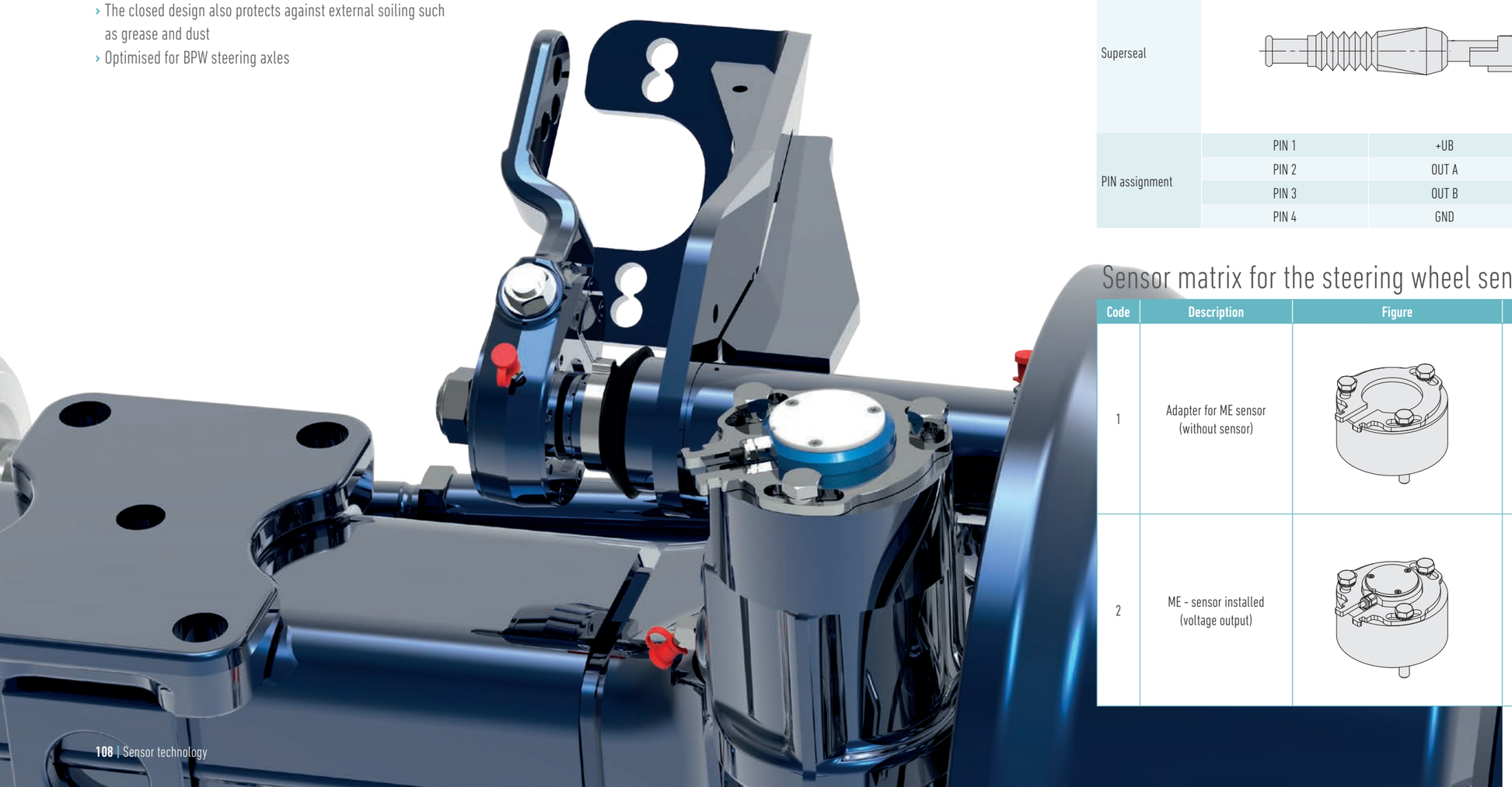
For the **AGRO Turn** steering axle and **GS(H)LL 14010 steering axle,** BPW has developed an integrated solution for steering angle sensors. With this **adapter** (optionally including sensor), you are provided with a complete solution for various applications such as, e.g. electronic forced steering systems. The highest possible functional reliability is guaranteed thanks to the protected installation position.

Benefits that convince

- Protected design guarantees a high reliability and long service life
- Special adapter geometry for a simple adjustment of the sensors
- Mechanical and electronic stability, even under tough conditions

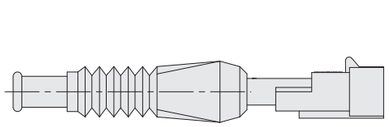
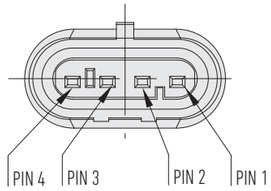
Other features

- The closed design also protects against external soiling such as grease and dust
- Optimised for BPW steering axles

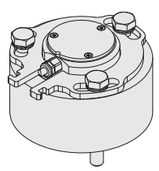
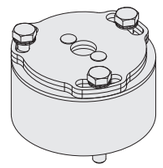


Installation options for ME sensors

- Simple adjustment
- Pre-set sensor
- "Ready to use" in combination with the electronic steering system from the company ME -Mobil Elektronik

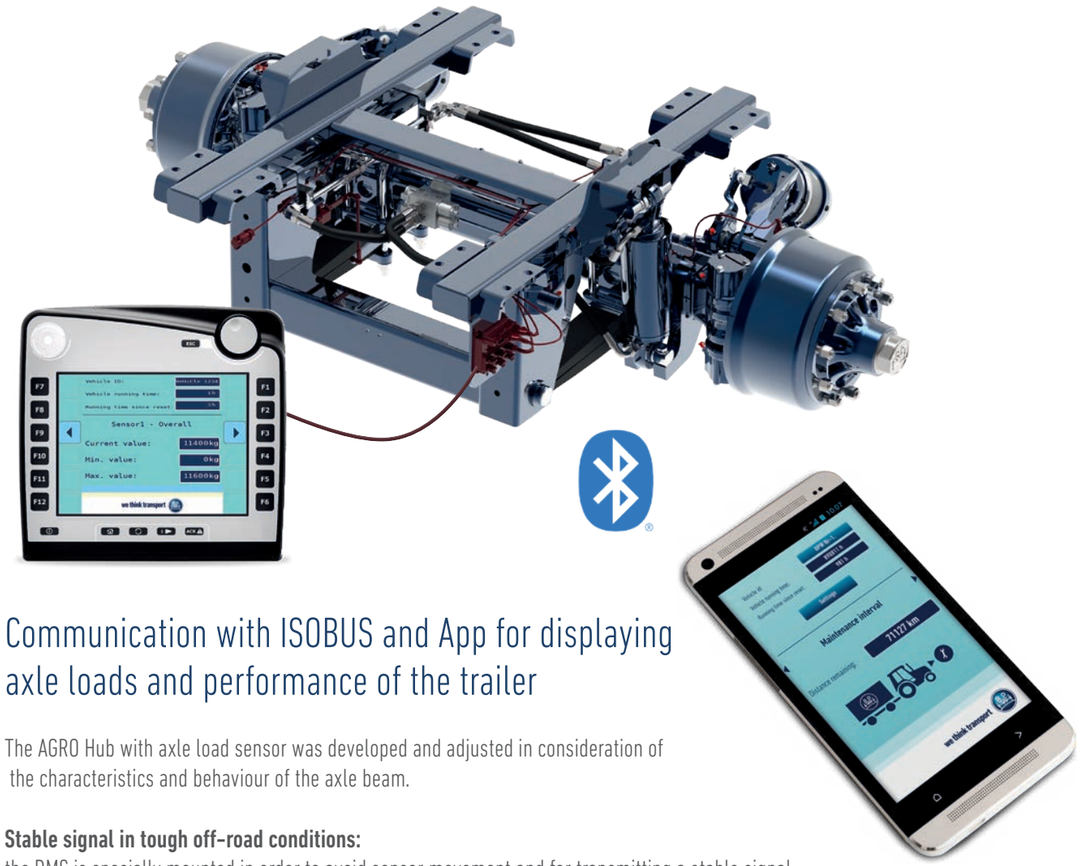
	With voltage output		With current output	
Voltage supply	9—34 V			
Current consumption	max. 25 mA		max. 60 mA	
Output range	0,25—4,75 V		4—20 mA	
Measuring range	2x 70 ° (0°± 35 ° for 2,5 V ± 2,25 V)		2x 70°(0°± 35 ° for 12 mA ± 8 mA)	
Repeat precision	≤ 0,1 % in case of play-free and central positioning on the installation side		<0,2 % of the measuring range with play-free and central bearing equipped	
Temperature range	-30— +80 °C			
Cable length	2,0 m		0,3 m	
Housing	IP6K6K/IP6x8 (1 m; 12 h)/IP6K9K			
Plug connection	IP6K6K/IPx7/IPx9K when plugged in			
Superseal				
PIN assignment	PIN 1	+UB	PIN 1	GND
	PIN 2	OUT A	PIN 2	+UB
	PIN 3	OUT B	PIN 3	OUT A
	PIN 4	GND	PIN 4	OUT B

Sensor matrix for the steering wheel sensor

Code	Description	Figure	Code	Description	Figure
1	Adapter for ME sensor (without sensor)		3	ME sensor installed (current output)	
2	ME - sensor installed (voltage output)		4	Adapter for ELOBAU sensor (without sensor, the adapter is compatible with various ELO-BAU steering angle sensors)	

AGRO Hub

Success is measurable



Communication with ISOBUS and App for displaying axle loads and performance of the trailer

The AGRO Hub with axle load sensor was developed and adjusted in consideration of the characteristics and behaviour of the axle beam.

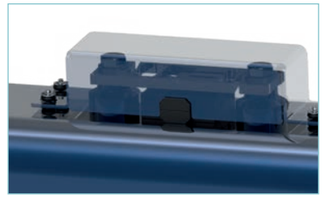
Stable signal in tough off-road conditions:
the DMS is specially mounted in order to avoid sensor movement and for transmitting a stable signal.

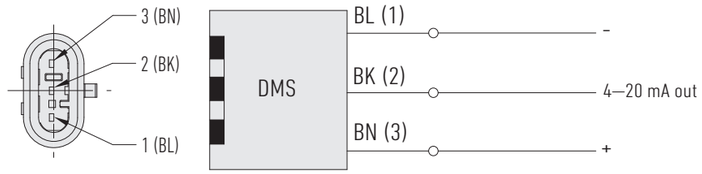
Smoothing the measuring results with dynamic driving influences:
The AGRO Hub algorithm was developed to consider influences caused by uneven road surfaces for the dynamical measurements.

Moreover, the ARGO Hub offers a precise overview of the performance of the running gear. The integrated sensors determine the total mileage and the daily mileage. The vehicle owner or respective driver can have the operating hours or mileage displayed.
Using diagrams, the use of the vehicle can be perceived quickly and accurately. Display is carried out via the BPW AGRO App (Android and iOS), that can be connected wireless to the AGRO Hub. The system also offers ISOBUS communication channels.

Functions
› ISOBUS communication
› Wireless communication with Android App free of charge
› Total weight measurement
› Mileage, average speed, current speed

BPW axle load sensor





Technical Data	
Operating voltage	8–30 VDC
Output current	4–20 mA
Intrinsic current consumption	< 10 mA
Temperature range	-40– +70 °C
EMC durability	according to EN ISO 14982:1998
Protection class	IP 67 according to DIN EN 60529
Type of connection	3-pin AMP Superseal

Benefits that convince

- Dynamic total weight measurement
- Optimum operating costs by monitoring of the total weight and payload
- The axle load sensor developed especially for BPW axles is characterised by a very high reliability and measuring accuracy
- Stable signal under extreme temperature fluctuations
- Simple calibration

Product matrix

Axle cross-section Axle type	Axle load	120x10	120x15	150x10	150x16	150x20
GS(LA) 11000	10–11 t	x	x	–	–	–
GS(LL) 12000	12–13 t	–	–	x	x	
GS(LL) 14000	14–15 t	–	–		x	x

Possible with the following suspension options

- Mechanical – VB
- Boogie

Packages

Package 1

Components / Vehicle	Number of axle load sensors (DMS)
Single axle	1
Tandem	2
Tridem	3

* Delivery state: DMS is mounted on the axle.

Package 2

Components / Vehicle	Number of axle load sensors	Number of SDS	Number of hubs	Number of measuring amplifiers	Cable set	Necessary measuring towing eyes (pcs.) (not in BPW scope of supply)
Single axle	1	2	1	1	Cable set 1	1
Tandem	2	2	1	1	Cable set 2	1
Tridem	3	2	1	1	Cable set 2	1

* Delivery state: DMS and SDS are mounted on the axle.
Hub and measuring amplifier are either delivered loose or with complete suspension unit.
The cable set includes all necessary extension cables.

Scan me!
You can find out more about the AGRO Hub product here.

TECHNOLOGY AND SUPPORT

BPW unique selling points
What makes our products unique

Running gears from BPW offer robust technology for a long vehicle life. Each feature of the axle is matched to the difficult tasks and challenges of the agriculture.

Square axle beams



Together with our brakes and suspensions, the square axle beams form a stable basis for a long vehicle life. It has an extremely high resistance against all bending and torsion stress which is proven by many loading tests, endurance tests and long-term road tests. It also has high safety reserves in case of temporary and extreme overloading.

In addition to the proven solid axle beam, BPW has also been manufacturing hollow axle beams for decades. The square BPW hollow axle beam comprises two high-quality, specially rolled axle tube halves which are welded together on the inside and outside. A particular feature of the BPW standard axle beam is its profile shape: more material in the corner radius and less material in the upper and lower section. The axle cross-section are therefore reinforced at the loaded points and have the highest rigidity with low own weight for heavy payloads. BPW axle tubes are available in different axle cross-sections and wall thicknesses, matched to the axle load and operating conditions.

Benefits that convince

- Hollow axle beams for low inherent weight and the highest stability for high payloads
- Joining the tempered axle stub and square axle beam by means of the butt-welding process ensure a unequally safe connection and the longest possible service life
- Easy assembly / disassembly of the wheel hub thanks to the stepped bearing seats on the axle stub

Axle stub and axle beam



The **BPW axle stub** is made from a BPW-specific annealed material. The optimum design of the axle stub adapted to the load and the square axle beam as well as the material selection ensure for a high service life of the axles.

During the butt welding, the axle stub and axle beam are joined to produce one piece. In this welding process, the axle tube and the ends of axle stubs are heated up to welding temperature by an electric current applied at their joining faces, whilst at the same time being forced together. This produces an absolutely homogeneous connection without disturbing notch effect.

KTL-surface finishing



An important quality feature of our products is the **cataphoretic dip-coating with zinc phosphate treatment (KTL).** This computer controlled coating method is a special surface treatment that ensures for a five times higher corrosion protection than conventional coating methods.

From the axle to the complete suspension unit with frame, all products from BPW receive a series KTL-coating.

Over-paintings
are – with individual requirements on gloss level and colour tone – possible with cost-effective **top coating systems.**



Benefits that convince

- Minimum rust creepage, e.g. after surface damage by stone or chipping strikes
- Protection against stone or chipping strikes
- Longer service life of the entire BPW running gear
- Excellent optic: droplet and run-free surfaces with equal surface thickness
- High surface hardness: less damage from transport and assembly
- Less effort for maintenance and repairs
- High heat-resistance
- Environmentally friendly coating methods: environmentally harmful substance are not released

BPW unique selling points
What makes our products unique

Bearing system

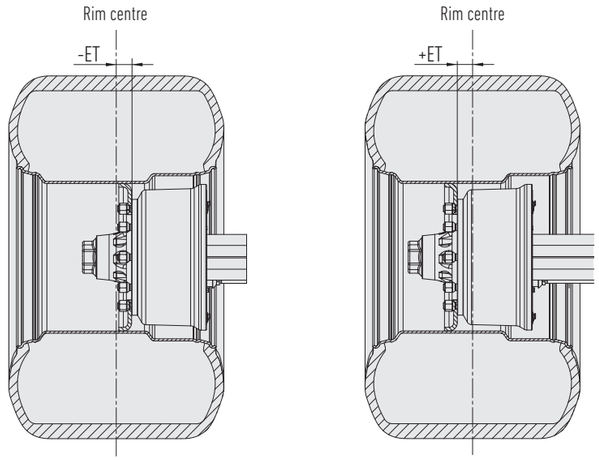
Parallel to the proven technology from the commercial programme. Tapered roller bearings developed and continuously checked especially in line with BPW internal factory standard, which have been tested in BPW long term road tests and endurance test series. In addition to the longevity, the bearing also has a low rolling resistance.

Safe driving. Long service life and low rolling resistance.



Offset

The offset of a wheel designates the distance between the rim centre and the inner contact plane between the rim and the wheel hub (or brake drum), measured in millimetres.



A zero offset means that the centre of tyre running surface is symmetric with respect to the mounting plane between the rim and the wheel hub (or brake drum). A positive offset (e.g. +25 mm) means that the contact plane is displaced outwards in respect to the rim centre, thus the track (SP) is reduced. A negative offset (e.g. -25 mm) means that the contact plane (rim flange) is displaced inwards thus increasing the track.

BPW agricultural axles are usually designed for the application of rims with a zero offset. Rims with offset (positive or negative) have a different wheel pressure line resulting in higher load on the respective wheel bearing (positive offset – inner bearing, negative offset – outer bearing). In certain circumstances this may reduce axle load.

Rims with offset should be applied only upon consultation with BPW.

Camber and toe-in

Both the camber and toe-in of each BPW axle beam are set at the factory. The camber and toe-in provide a safe driving behaviour. Moreover, this results in an equal reduction of tyre wear and a reduces operating costs.

Positiver camber – Unladen vehicle

Camber is defined as the angle between the wheel centre plane and a line drawn perpendicular to the road surface. The camber is positive if the top of the wheel is angled outwards when the axle is unladen.



Positiver camber – Loaded vehicle

The flexural load on the axle beam when the vehicle is laden causes the wheel to straighten and therefore ensures for an optimum road contact when the vehicle is laden, the most critical condition in terms of tyre wear. This avoids uneven, premature tyre wear.



Toe-in

Toe-in is the angle that results between the longitudinal axis of the vehicle and the wheel centre plane. Toe-in means the front part of the wheel is turned inwards towards the longitudinal axis of the vehicle thus, the distance between the front of the tyres is less than the distance at the rear. When driving, the rolling resistance of the tyres causes the angle to be reduced to 0°, thereby guaranteeing good straight-line stability. Without toe-in, the wheels would attempt to run outwards.



Benefits that convince

- Maximum road surface contact, maximum tyre protection
- Setting a positive camber ensures maximum contact between the road and the tyres when the vehicle is laden, optimum tyre tracking and avoidance of uneven, premature tyre wear
- Precisely adjusted toe-in ensures good straight-ahead stability
- Lower operating costs and greater driving safety

Our services
We work for you



Sales and order logistics
All-inclusive contact

Our expertise:
- Comprehensive support
- Quick response to customer requirements
- Professional organisation

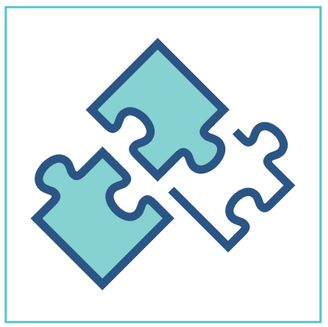
Your benefits:
- Optimum process time
- Permanent personal contact partner
- Flexibility with orders



Application consultant
Specialists for agricultural vehicles

Our expertise:
- Matching components, axles and suspension for your vehicles
- Ensuring the compatibility between the components and systems used

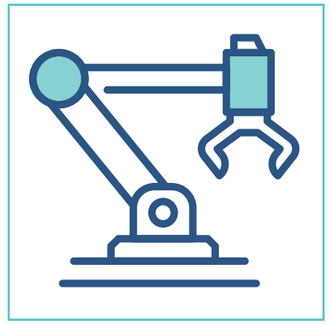
Your benefits:
- Experienced engineers consult you in the engineering of your vehicles
- We help you to navigate through the diverse range of products on the market
- Presentation of our newly developed products
- Assistance when commissioning



Construction
All from a single source

Our expertise:
- Further development of components
- Development of a completely new suspension unit
- Savings in time and costs
- Safeguards your construction and thus avoids complaints

Your benefits:
- FEM designed components and systems
- On our test bench, we simulate the vertical, transverse and longitudinal forces acting on the running gear as well as the brake and steering torques
- Brake and bearing calculation
- Test vehicle
- Brake test bench



Production
Quality and efficiency

Our expertise:
- Focus on our own core competencies
- Improvement of the lead times
- Optimisation of the stocking and warehousing
- Avoidance of our own production risks

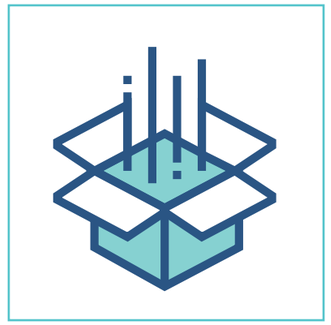
Your benefits:
- Many years of experience, in particular in mechanical processing
- Surface treatment and assembly
- Various quality assurance certificates
- Product-specific assembly points
- Flexible prioritisation



Customer services
Mobility

Our expertise:
- Quick response times
- Unbureaucratic processing
- Competent contacts

Your benefits:
- Seamless maintenance documentation
- Comprehensive customer services
- In the scope of a technical agreement, the deployment of our fitters on-site is possible



Spare parts supply
With original parts, you always drive better

Our expertise:
- More economical over the long term
- Higher service lives
- Longer service life from perfectly matched individual components

Your benefits:
- More than 3.200 service station world wide with original BPW parts
- Individual spare parts lists and drawings
- Spare parts groups for standard products
- Every axle and running gear are documented, which allows every component to be easily identified

BPW Engineering, Innovation, Test centre
We work for you

BPW-Hungária has been taking over the constructive responsibility for agricultural products since more than two decades. In this time, we have continuously increased the reliability and level of quality of our products and have embarked on new paths in the versatile agriculture sector.

Today 44 highly qualified engineers work on the development of new axles, suspension units and accessories, supported by the most modern 3D technology and numeric simulations.

We believe in innovation and are convinced that a goal-orientated person and a machine trimmed perfectly to its work can form a unit where nothing is impossible.
For this purpose, we are always open for new ideas, concentrate ourselves on the customer-orientated product development and supported individual products, perfectly adapted to the modern challenges.

We have a test centre with a floor area more than 1.000 sqm. Since handing over in 2017, we can test our products with new intensity.

Six engineers from the development department carry out tests like the following:

- Brake test reports - the respective experts reports fulfil the requirements of national, European and international test centres for all test areas
- Strength tests on the special Hydropuls island
- Functional corner conditioning test and small test area
- Vehicle tests, also for the complete vehicle homologation

Our forward-looking patented solutions reflect our success and our professional knowledge.









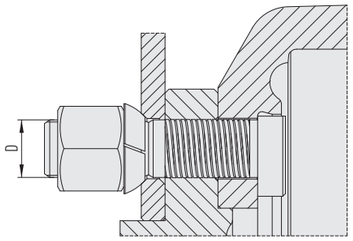




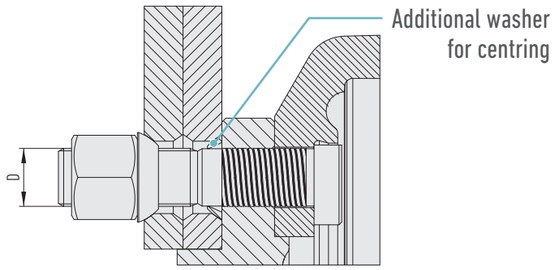
Assembly instructions for wheels

Pin centring

The centring and fixing of the wheel takes place via the ball washer. The hole of the rim must have a tapered notch to allow the washer to be centred by the tapered shape.



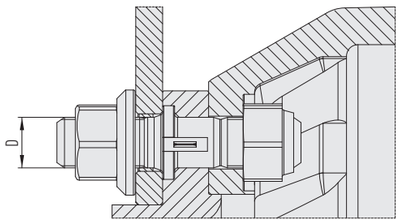
Single wheel



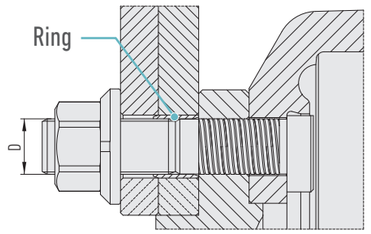
Twin tyres

Spigot alignment

The alignment is ensured via the centre hole, the fastening holes do not have any alignment function. For the assembly of the wheels, two rings should be used to reduce the play between the wheel bolt and wheel hole and thus make the assembly easier.



Single wheel



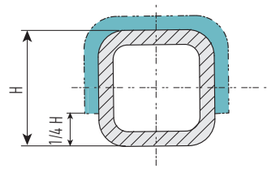
Twin tyres

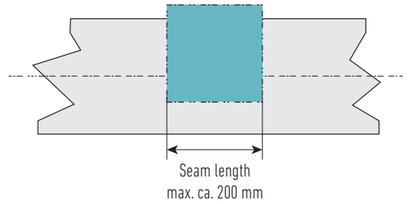
Thread (D) mm	Width across flats mm	Tightening torque mm	Wheel fastening
M18 x 1,5	24	270 (250–290)	Pin centring
M20 x 1,5	27	380 (360–400)	Pin centring
M22 x 1,5	32	510 (485–535)	Pin centring
M22 x 1,5	32	630 (600–660)	Pin centring

Welding guidelines for axle beams

During the install of the axles, it may be necessary to weld subsequent components on to the axle beam. BPW axles are therefore manufactured from weldable material. The axle beams do not have to be pre-heated before welding.

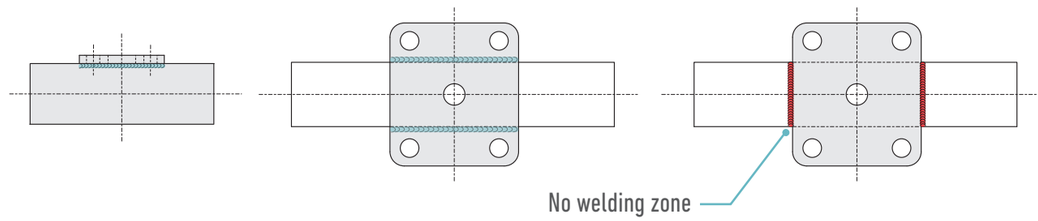
Welding my not take place in the lower tensile section of the axle beam.





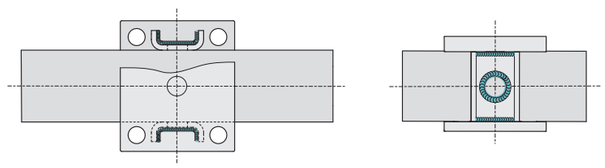
Solid axle beams

The plate is welded directly to the axle beam. Transverse welding is forbidden.



Hollow axle beams

The spring seats are not welded directly to the axle beam.
The additional plate or support must be used as shown.



BPW must be consulted for further welding guidelines and welding methods.

BPW brake cylinder
The best solution for brakes

With a brake system, the optimum interaction between the individual components is of utmost importance. In doing so, the brake cylinder takes over a decisive role as it must ensure for the perfectly dosed transmission of forces in the brake system.

BPW develops and produces their own brake cylinder for drum brakes - further evidence for our comprehensive competence concerning brakes.

Options for BPW brake cylinders



Diaphragm cylinder



Spring brake cylinder

- They act as operating brake and are characterised by small outer dimensions and low weight.

Achievable types

Diaphragm cylinder	Spring brake cylinder
12"	–
16"	16/24"
20"	20/30"
24"	24/30"
30"	30/30"
36"	
36L" – Long stroke cylinder	–

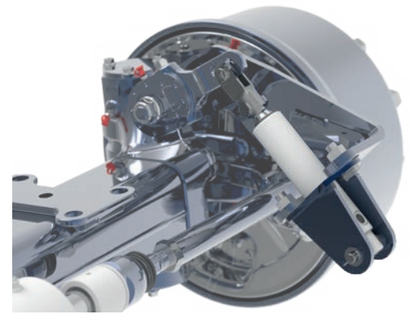
- They act as operating as well as auxiliary and parking brake.

Benefits that convince

- Permanently high quality through tests and continuous quality controls: FMEA, dimensional checks, release pressure tests, function tests on the vehicle, vibration test, soiling test, fatigue stability tests with more than a million brake cycles, cold and heat test (-40 °C, +80 °C), force output control
- Improved sealing due to flanging technology
- Optimum corrosion protection of the housing components through various high-quality coating processes
- Imperial and metric connections can be supplied
- Assembly-friendly due to compressed air connection extension (standard with spring-loaded cylinders for disc brakes)
- Optimum corrosion protection of the spring due to double coating
- ECE reports and test reports are available on the BPW homepage

Hydraulic brake cylinder

In many European counties, a hydraulic brake system is standard for vehicles up to a top speed of 25 km/h. BPW axles are generally suitable for installation and control of the brake via a hydraulic brake cylinder. The hydraulic brake cylinder is mounted on the standard bracket by means of an adapter. Hydraulic BPW brake cylinders have an approval of CEMAGREF / UTAC in France.



Achievable types

Piston diameter~ (mm)	External diameter (mm)	Stroke (mm)	CEMAGREF / UTAC- Test report number
20	40	100	14956
25	40	100	15352
30	45	100	15351
35	50	110	18/06368
40	55	100	18/06369

Benefits that convince

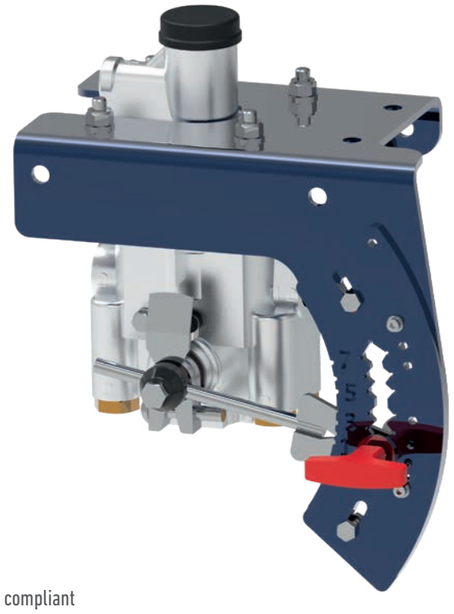
- CEMAGREF / UTAC tested cylinder (necessary for the French market)
- Simple assembly on the standard brake cylinder bracket by means of special adapter
- BPW brake calculation for dimensioning the brake system

Mechanical load-dependent brake force regulator

The unique solution in accordance with the requirements placed on Regulation EU 2015/68

Mechanical **L**oad-dependent **B**rake force regulator (MLB) for setting the pressure value with brake operation of unsuspended trailers.
More information: **www.bpwagrar.com/MLB**

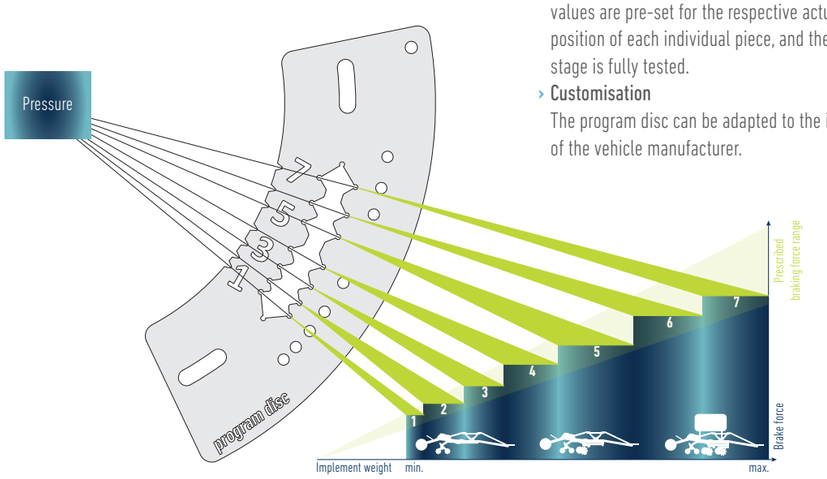




100% covered with only **one** homologation

Benefits that convince

- **Wide range of applications**
  Suitable for all unsuspended agricultural trailers up to 30 or 40 km/h that, for technical reasons, can no longer be equipped with a self-acting load-dependent brake force regulator.
- **Outstanding efficiency**
  With a brake system equipped with an MLB , an entire vehicle series (different versions with different vehicle weights and tyres) can be covered and homologated.
- **EU compliant**
  Complete fulfilment of the prescribed compatibility requirements for proportional pressure control.
- **Easy operation**
  Safe and simple adjustment of the stages thanks to the special square holes as well as limitations and adjustment options of necessary stage ranges.
- **Functional reliability**
  End-of-Line test: before the final fixing of the program disc, the pressure values are pre-set for the respective actuating position of each individual piece, and then each stage is fully tested.
- **Customisation**
  The program disc can be adapted to the individual requirements of the vehicle manufacturer.



Spare parts from BPW

With original parts, you always drive better

World-wide, BPW is the benchmark for uncompromising top-quality products, that satisfy the highest demands on quality and reliability. BPW original parts are brand products directly from the manufacturer. These have the same competence and quality like our new parts. BPW original parts are being continuously further developed and offer you the safety that they are matched precisely to your running gear system. Maximum performance is guaranteed.

Quick delivery times in the BPW network

You are provided with BPW original parts world wide – in more then 3.200 BPW service stations. Our logistics concept is designed for quick demand and also delivers overnight. To quickly get you back on the road.

To ensure that your receive the matching spare parts, we already address things precisely in the production:
Every axle and every running gear is documented – this data is stored for at least ten years. This allows every component to be identified specific to the axle and running gear. And you will be provided with the correct spare part as quick as possible.

Search for spare parts lists: **www.bpw.de/mybpw**



Benefits that convince

- More economical over the long term
- High service lives
- Longer service life from perfectly matched individual components (compatible and perfect fit)
- Short downtimes
- Exemplary European-wide spare part availability

Brands of the BPW Group
The network of competence

In the world of transport and logistics, everything goes hand in hand. The BPW Group is a world wide network of leading specialists in research and development, industrial production and sales – for all tasks that motivate vehicle manufacturers and operators: today, tomorrow and the day after tomorrow.

Everything that a trailer moves, digitally networks, safeguards and illuminates originates from the brands of the BPW Group: **BPW, Ermax, HBN-Teknik, Hestal and idem telematics**.



we think transport

In the BPW Group, it is our goal to support our customers in the transport and logistics trade as good as possible. That is why we have your needs as highest priority. Furthermore, we also adapt our solutions to your individual requests and we are also at your disposal with advice and support.

For us in the BPW Group, this partnership means: **we think transport**.

Ermax
Your partner for complete lighting systems

ERMAX A/S develop, produce and sell a wide range of products in the sectors for lighting, junction boxes and cable systems for heavy-duty vehicles and agricultural machines. Thanks to a combination of in-house production in Denmark and license manufacturing of their own tools at selected and exclusively certified business partners all over the world, we offer a wide range of quality products.

SCAN ME

www.ermax.dk

HBN-Teknik
Your expert for composite materials

HBN-Teknik A/S is one of the worlds leading developers and manufacturers of composite material solutions for the automotive industry. Being a pioneer of injection-moulding technology, we unite a unique expert knowledge in the areas of lightweight construction, structural analysis, manufacturing processes and examination of materials ans products.
As we had already dedicated ourselves to continuous innovation long ago, we were able to expand our range of products to high-tech sectors that until now, were dominated by components made of steel and aluminium.

www.hbn.dk

Hestal
Locks your load best

F. Hesterberg & Söhne GmbH & Co. KG is one of the leading global manufacturers and providers of fasteners and superstructure technology. People all over the world trust our products because they can rely on them. In doing so, our offer ranges from high-quality components (such as fasteners, hinges and pillars) up to tailor-made system solutions (e.g. Complete aluminium superstructures for platform and curtainsider vehicles).

www.hestal.de

idem telematics
Manufacturer of telematics systems

idem telematics is one of the leading manufacturer of telematics systems for the precise control of mobile units and their integration into the business processes of future-orientated transport and logistics companies.
Being Europe's leading telematics partner, idem telematics assists forwarding agents, fleet operators or loaders in continuously improving their core business.

www.idemtelematics.com

Always close at hand

The world wide BPW subsidiaries and representatives

Being in Europe or overseas – those travelling with a running gear system from BPW always have a reliable partner at their side. As our world wide subsidiaries and representatives ensure that everything runs well for you. You can rely on it.

www.bpw.de/en/service/contact/bpw-subsidiary

Europe

Belgium BPW BENELUX Sprl Herstal **www.bpw-benelux.be**	**Finland** BPW Kraatz Oy Espoo **www.kraatz.fi**	**The Netherlands** BPW BENELUX Sprl ST Eindhoven **www.bpw-benelux.nl**	**Switzerland** Fahrzeugbedarf AG Horgen **www.fbh.ch**
Bulgaria Stankoff Ltd. Sofia **www.stankoff-bg.com**	**France** BPW France S.A.S. Paris Nord **www.bpwfrance.fr**	**Austria** Fahrzeugbedarf Kotz & Co. Guntramsdorf **www.fahrzeugbedarf.at**	**Spain** BPW Trapaco, S.L. Madrid **www.bpw.es**
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Estonia GOKART AS Tallinn **www.gokart.ee**	**The Netherlands** BPW BENELUX Sprl ST Eindhoven **www.bpw-benelux.nl**	**Sweden** FOMA Ängelholm **www.foma.se**	**Hungary** BPW-Hungária Kft. Szombathely **www.bpw-hungaria.hu**

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Australia BPW Transpec Pty Limited Melbourne **www.bpwtranspec.com.au**	**Singapore** BPW Asia Pte Ltd Singapore **www.bpw.sg**
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India BPW Trailer Systems India Private Limited, Pune **www.bpwindia.com**	**Thailand** BPW Asia Pte Ltd Rayong **www.bpw.sg**
Japan Nippon BPW Limited Yokohama **www.bpw.jp**	
New Zealand BPW Transport Efficiency Ltd. Auckland **www.tenz.co.nz**	
North America AIC Supply Inc. Winnipeg **www.aicsupplyinc.com**	

BPW Customised Solution

Order sheet

Agricultural Catalogue

Customer:_____ Order ☐

BPW contact person:_____ Offer ☐

Annual quantity:_____

Vehicle type:_____

Required axle load_____kg

Speed:_____km/h

Tires:_____

Offset:_____

Axle code

☐☐.☐☐.☐☐☐-☐-☐☐☐☐☐☐☐☐☐

Track:_____mm

Spring center:_____mm

Brake holder center:_____mm

Notes*:_____

_____

* for example selected brake cylinder bracket position of the AGRO Turn steering axle

Running gear code

☐☐.☐☐.☐☐-☐-☐☐☐☐☐☐☐☐☐☐☐☐☐

Track:_____mm

Spring center:_____mm

Notes:_____

_____

Overrun hitch code

☐☐.☐☐.☐☐☐-☐-☐☐

Notes:_____

_____

BPW Bergische Achsen Kommanditgesellschaft
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info@bpwagrar.com · **www.bpwagrar.com**

we think transport

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