NZ TRANSPORT AGENCY
WAKA KOTAHI

Heavy vehicle specialist certificate

Must be presented to a CoF (heavy) inspecting organisation
Heavy vehicle specialist inspector and inspecting organisation

Heavy vehicle specialist inspector's or manufacturing inspecting organisation's name (PRINT IN CAPS)	ID
Lance Cawte	LPC

Vehicle registration *(optional)*

Make: DOMETT TRAILERS

Model *(optional)*

Certification category: HVEK

VIN/chassis number: 7 A 9 1 0 0 1 4 G 1 0 2 3 4 7 5

Component being certified:
- [ ] Chassis
- [ ] Log bolsters
- [ ] SRT
- [ ] Swept path
- [ ] Towing connection
- [ ] PSV stability
- [ ] PBS
- [ ] Load anchorage
- [X] Brakes
- [ ] PSV rollover

Description of work

REPLACE WABCO BRAKE CALIPERS WITH SAF CALIPERS
~~The brake performance of the vehicle and remains within the NZHVBR~~
~~Continued Compliance~~

Code/standard/rule certified to	Component load rating(s)
BRAKE RULE 32015/3	N/A

General drawing number(s): N/A

Supporting documents: BRAKE CODE CERTIFICATE   SODC, LC160417

Special conditions *(optional):* N/A

Certification expiry date *(if applicable):* N/A   **or**   **Hubodometer reading** *(whichever comes first)*

Declaration

I the undersigned, declare that I am the heavy vehicle specialist inspector identified and I hold a current valid appointment. I certify that the above mentioned vehicle component's design, manufacture and installation, and this certification complies in all respects with the Land Transport Rule: Vehicle Standards Compliance 2002 and my appointment. To the best of my knowledge the information contained in the certificate is true and correct.

Designer's ID *(if different from inspector below)*

Inspector's signature

Inspector's name *(PRINT IN CAPS):* Lance Cawte   **ID number:** L P C

Date: 28-Jun-16   **Number:** 550058

CoF vehicle inspector ID	CoF vehicle inspector signature	Date

All fields are mandatory unless otherwise stated.

trailer (full, semi-, centre-axle) with air brake system acc. to
71/320/EEC, last amended by 98/12/EC and 2006/96/EC

distribution: DOMETTS
              2016, 5A, SAF,
              NEW TANKER
              SAF CALIPERS

vehicle manufacturer: DOMETTS

trailer model   :   2016 5A TANKER, E1001

trailer type   :   5-axle-full-trailer

remarks   :   air / hydraulic / VA suspension
                          EC w.o.annexVII
                          WABCO TRAILER - EBS
                          TRISTOP 3+4: T.14/24
                          265/70 R 19,5

axle 1 : SAF, SBS 1918, TDB 0870 ext01 ECE,
axle 2 + 3 + 4 + 5 : SAF, SBW 1937, TDB 0749 ECE,

		unladen	laden
total mass	P in kg	6300	35200
axle 1	P1 in kg	1500	8000
axle 2	P2 in kg	1500	8000
axle 3	P3 in kg	1100	6400
axle 4	P4 in kg	1100	6400
axle 5	P5 in kg	1100	6400
wheel base	E in mm	5700 - 5700	
centre of gravity height	h in mm	900	1521

		axle 1	axle 2	axle 3	axle 4	axle 5
no. of combined axles		1	1	1	1	1
no. of brake chambers per axle line	KDZ	2	2	2	2	2
The power output corresponds to		BZ 122.1	BZ 122.1	BZ 119.6	BZ 119.6	BZ 122.1
brake chamber manufacturer		Meritor	Meritor	Meritor	Meritor	Meritor
chamber size		18.	18.	T.14/24	T.14/24	14.
lever length	lBh in mm	76	69	69	69	69
brake factor	[-]	22.37	23.03	23.03	23.03	23.03
dyn. rolling radius	rdyn min in mm	421	421	421	421	421
dyn. rolling radius	rdyn max in mm	421	421	421	421	421
threshold torque	Co Nm	6.0	6.0	6.0	6.0	6.0

calculation:

		axle 1	axle 2	axle 3	axle 4	axle 5
chamber pressure(rdyn min)pH at z=22,5%bar		2.3	2.3	2.1	2.1	2.1
chamber pressure(rdyn max)pH at z=22,5%bar		2.3	2.3	2.1	2.1	2.1
chamber press.(servo)pcha at pm6,5bar bar		6.2	6.2	4.9	4.9	4.9
piston force ThA at pm6,5bar N		6622	6622	4686	4686	4686
brake force(rdyn min)T lad. at pm6,5bar N		53630	50176	35386	35386	35386
brake force(rdyn max)T lad. at pm6,5bar N		53630	50176	35386	35386	35386
brake force within 1 % rolling friction						
proportion	%	22.4	20.9	18.9	18.9	18.9

braking rate   z laden   0.608   for rdyn min
z = sum (TR)/PRmax   0.608   for rdyn max

Trailer may only be operated in combination with trucks/tractors with
ISO 7638 supply (5 or 7 polar).

brake diagram :

maximum pressure: 8.5 bar

axle 1:
   valve 1: 971 002 ... 0   WABCO
          EBS emergency valve

   valve 2: 480 207 0.. 0   WABCO   or 480 207 2.. 0
          EBS relay valve

   brake cylinder: Meritor   18HSCLD64

axle 2:
   valve 1: 971 002 ... 0   WABCO
          EBS emergency valve

   valve 2: 480 207 0.. 0   WABCO   or 480 207 2.. 0
          EBS relay valve

   brake cylinder: Meritor   18HSCLD64

axle 3:
   valve 1: 971 002 ... 0   WABCO
          EBS emergency valve

   valve 2: 480 102 ... 0   WABCO
          EBS trailer modulator

   brake cylinder: Meritor   1424HTLD64

axle 4:
  valve 1: 971 002 ... 0   WABCO
         EBS emergency valve

  valve 2: 480 102 ... 0   WABCO
         EBS trailer modulator

  brake cylinder: Meritor   1424HTLD64

axle 5:
  valve 1: 971 002 ... 0   WABCO
         EBS emergency valve

  valve 2: 480 102 ... 0   WABCO
         EBS trailer modulator

  brake cylinder: Meritor   14HSCLD64

test type III (zIII = 0.30) for rdyn min : axle1 axle2 axle3 axle4 axle5
at pm 3.6 bar =>   pcha in bar :   3.1   3.1   2.6   2.6   2.6
test type III (zIII = 0.06) for rdyn min : axle1 axle2 axle3 axle4 axle5
at pm 1.3 bar =>   pcha in bar :   0.8   0.8   0.7   0.7   0.7

brake chamber pressure   laden

pcyl in bar

- axle 1
- axle 2
- axle 3
- axle 4
- axle 5

pm in bar
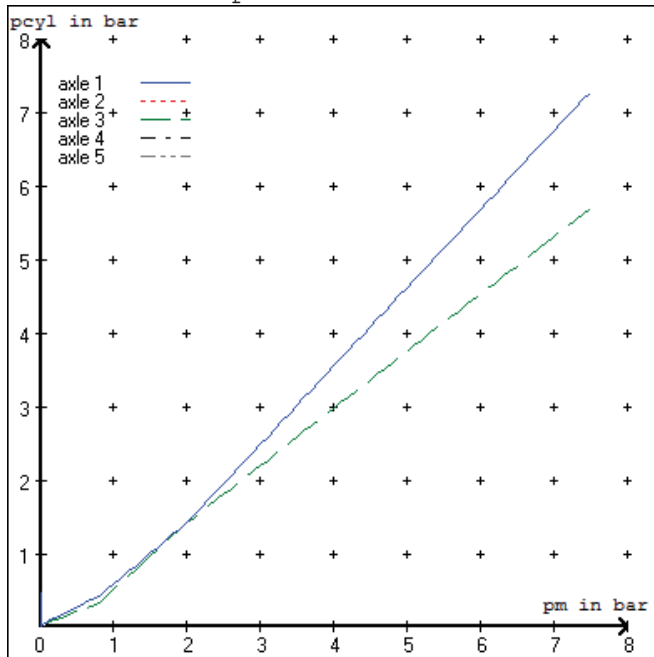
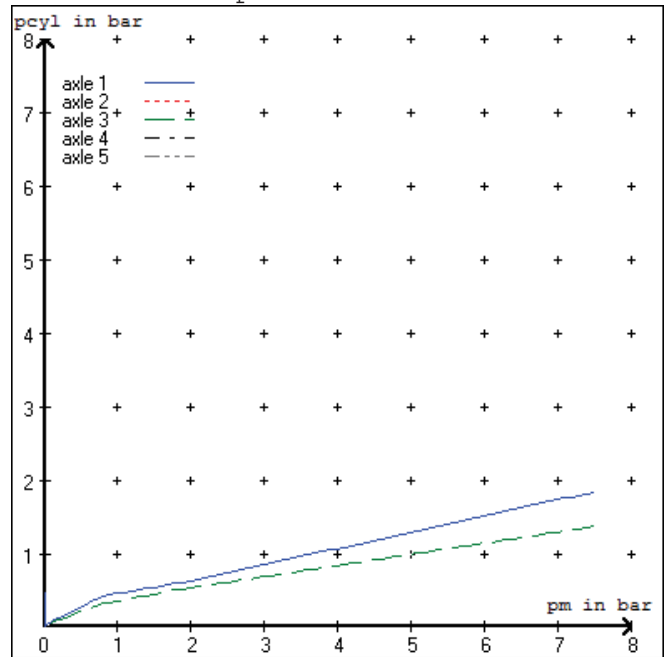## brake chamber pressure   unladen

pcyl in bar

- axle 1
- axle 2
- axle 3
- axle 4
- axle 5

pm in bar

compatibility band   laden

TR/PR

pm =   2   4   6,5 bar
:z = 0.13 0.34 0.61

rdyn

pm in bar
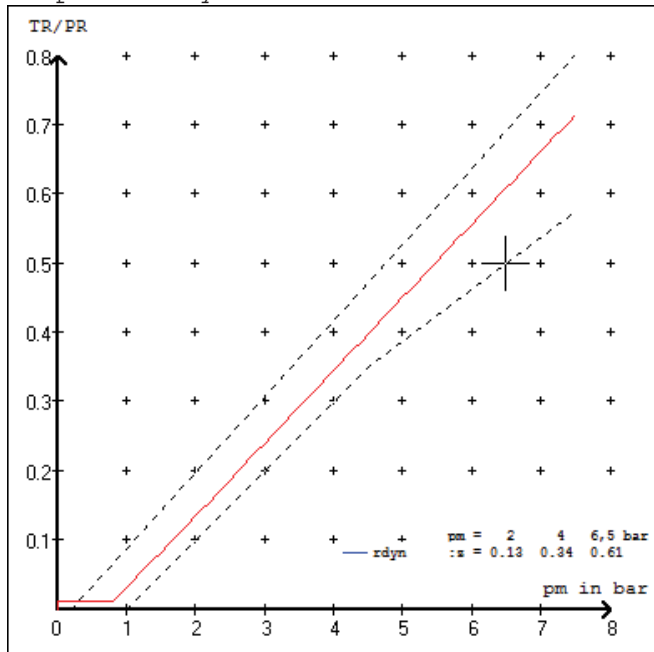
compatibility band   unladen

TR/PR

in case of guaranteed operation
no prescription
pm =   2   4   6,5 bar
:z = 0.15 0.39 0.68

rdyn

pm in bar

curves of friction   laden

k

wheel base :
E min : 5700 mm E max : 5700
group of axle 1 : rdyn 421 mm
group of axle 2 : rdyn 421 mm

in case of guaranteed operation
no prescription

z
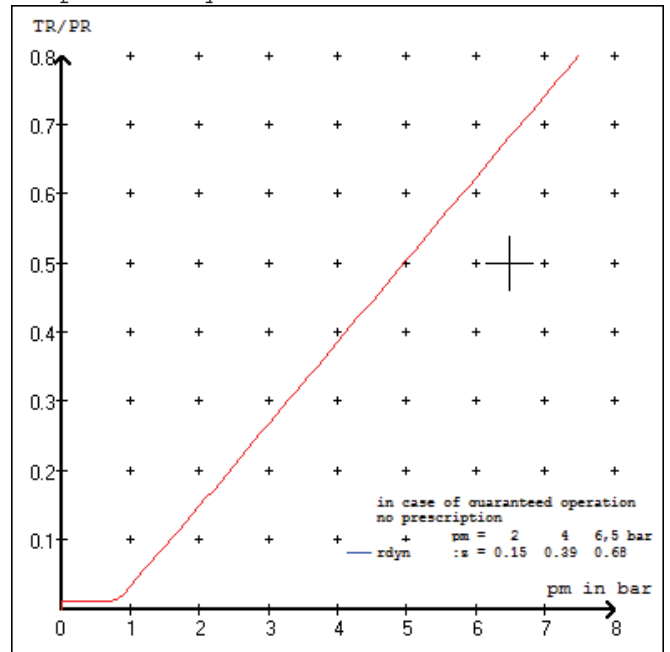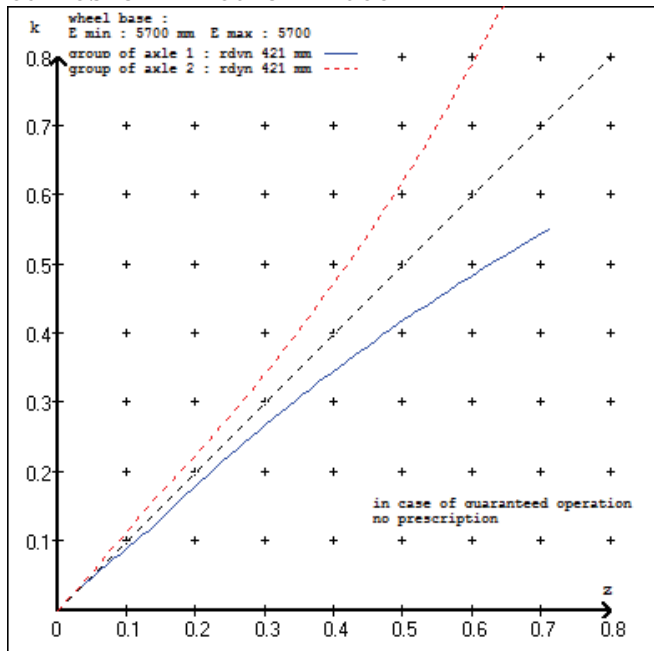
curves of friction   unladen
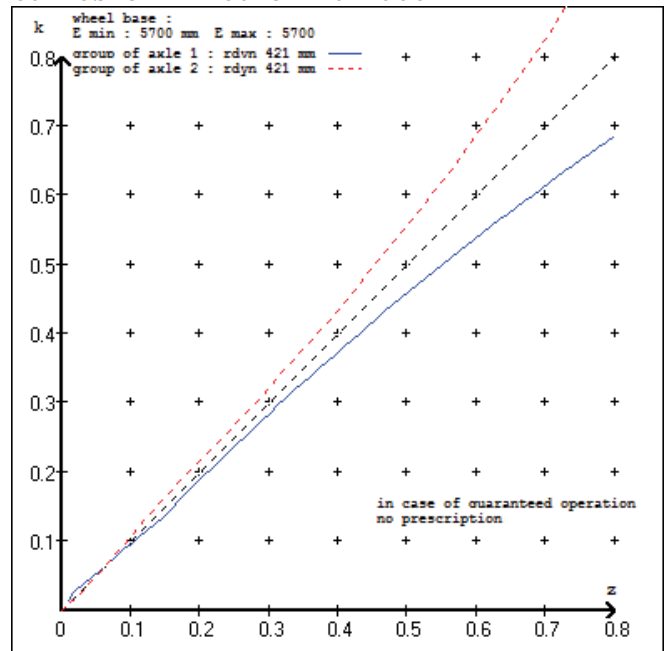
k

wheel base :
E min : 5700 mm E max : 5700
group of axle 1 : rdyn 421 mm
group of axle 2 : rdyn 421 mm

in case of guaranteed operation
no prescription

z

vehicle manufacturer: DOMETTS
trailer model   :   2016 5A TANKER, E1001
trailer type   :   5-axle-full-trailer

brake chamber and lever length :
axle 1 :   2 x type/diameter   18. (Meritor)   lever length 76 mm
axle 2 :   2 x type/diameter   18. (Meritor)   lever length 69 mm
axle 3 :   2 x type/diameter T.14/24 (Meritor)   lever length 69 mm
axle 4 :   2 x type/diameter T.14/24 (Meritor)   lever length 69 mm
axle 5 :   2 x type/diameter   14. (Meritor)   lever length 69 mm

brake diagram :

valve :
971 002 ... 0   WABCO EBS emergency valve
480 207 0.. 0   WABCO EBS relay valve   or 480 207 2.. 0
480 102 ... 0   WABCO EBS trailer modulator

EBS input data
==============
vehicle manufacturer: DOMETTS
trailer model   : 2016 5A TANKER, E1001
trailer type   : 5-axle-full-trailer
brake calculation no.   : TP 2016A

tire circumference main axle   : 2650 for rdyn max
tire circumference auxiliary axle   : 2650 for rdyn max

assignment pm / deceleration z: pm 0.8 bar z = 0.010
(laden condition)   2.0 bar z = 0.134
                                   6.5 bar z = 0.610

axle	axle load unladen	bellow pr. unladen	brake pr. unladen	axle load laden	bellow pr. laden	brake pr. laden		
		control pressure pm	6,5		control pressure pm	0.8	2.0	6.5
1	1500	to be	1.6	8000	to be	0.4	1.4	6.2
2	1500	entered by	1.6	8000	entered by	0.4	1.4	6.2
3	1100	the vehicle	1.2	6400	the vehicle	0.3	1.4	4.9
4	1100	manufact.	1.2	6400	manufact.	0.3	1.4	4.9
5	1100		1.2	6400		0.3	1.4	4.9

The unladen values indicated in the above table are values for the
basic parameter set. Higher unladen axle loads and liftaxles are
automatically recognized and do not require separate adjustment.
The above unladen axle loads must not be fallen below.
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axle 1		axle 2		axle 3		axle 4		axle 5	
axle load	pcyl	axle load	pcyl	axle load	pcyl	axle load	pcyl	axle load	pcyl
1500	1.6	1500	1.6	1100	1.2	1100	1.2	1100	1.2
2000	2.0	2000	2.0	1600	1.5	1600	1.5	1600	1.5
2500	2.3	2500	2.3	2100	1.9	2100	1.9	2100	1.9
3000	2.7	3000	2.7	2600	2.2	2600	2.2	2600	2.2
3500	3.0	3500	3.0	3100	2.6	3100	2.6	3100	2.6
4000	3.4	4000	3.4	3600	2.9	3600	2.9	3600	2.9
4500	3.7	4500	3.7	4100	3.3	4100	3.3	4100	3.3
5000	4.1	5000	4.1	4600	3.6	4600	3.6	4600	3.6
8000	6.2	8000	6.2	6400	4.9	6400	4.9	6400	4.9

spring parking brake

```
                                             axle 3    axle 4
no of TRISTOP-actuators per axle line KDZ       2         2
TRISTOP-actuator type                        T.14/24   T.14/24
lever length                  lBh in mm         69        69
stat. tyre radius        rstat max in mm       401       401

at a stroke of                s    in mm        30        30
min. force of spring brake    TFZ in N        7605      7605
sp.brake chamber no Meritor.....                4         4
release pressure             pLs in bar
                                              4.8       4.8
```

calculation:

```
ratio until road                           3.9674    3.9674
iFb = lBh*Eta*C*rBt/(rBn*rstat)
                  for rstat    in mm          401       401
brake force of spring br. Tf  in N          59654     59654
Tf = (TFZ*KDZ-2*Co/lBh)*iFb

braking rate          zf laden               0.356
zf = sum (Tf)/P + 0,01
```

Test of the frictional connection required by the parking brake

minimum wheelbase/minimum supporting width min Ef necessary
to fulfil the regulations

min Ef = E * (1 - PR/P + zferf * h/E) / (1 - zferf / (fzul * nf/ng))

```
min Ef =   4324 mm   for  E =   5700 mm
==================
min Ef =   4324 mm   for  E =   5700 mm
==================
```

```
min Ef =           minimum distance between front axle(s) (trailer) or support (semitrailer)
and the rear axle(s) (resultant of the bogie)
E       =          wheel base
fzul    =     0.80  maximum permissible frictional connection required
zferf   =     0.18  maximum required braking ratio of the parking brake
h       =   1521 mm  height of center of gravity - laden
PR      = 19200 kg  maximum bogie mass - laden
P       = 35200 kg  maximum total mass - laden
nf      =     2     no. of axle(s) with TRISTOP spring brake actuators
ng      =     3     no. of bogie axle(s)
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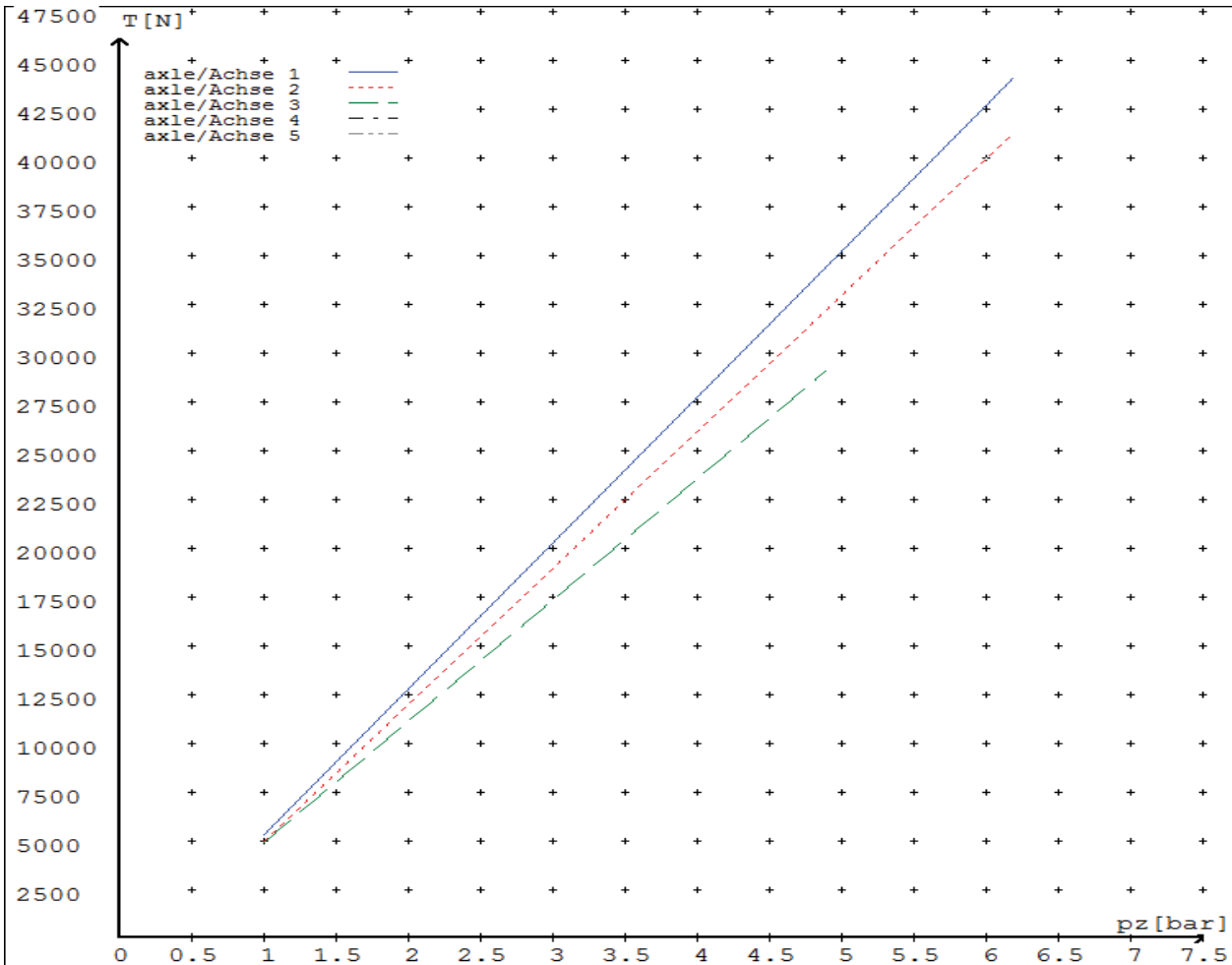
reference values

reference values for z = 50%   for max rdyn: 421 mm

	pz [bar]	T [N]	T [N]
axle 1	1.0 6.2	5249 44104	
axle 2	1.0 6.2	4904 41263	
axle 3	1.0 4.9		4812 29100
axle 4	1.0 4.9		4812 29100
axle 5	1.0 4.9		4812 29100

VIN - no.:

	Axle(s) / Achse(n)				
brake cylinder type (service / parking) Bremszylinder Typ (Betrieb / Fest)	18./	18./	T.14/24	T.14/24	14./
Maximum stroke smax = ...mm maximaler Hub smax = ...mm	64	64	64	64	64
Lever length = ...mm Hebellänge = ...mm	76	69.08	69.08	69.08	69.08

reference values for z = 0.5   **for max rdyn: 421 mm**
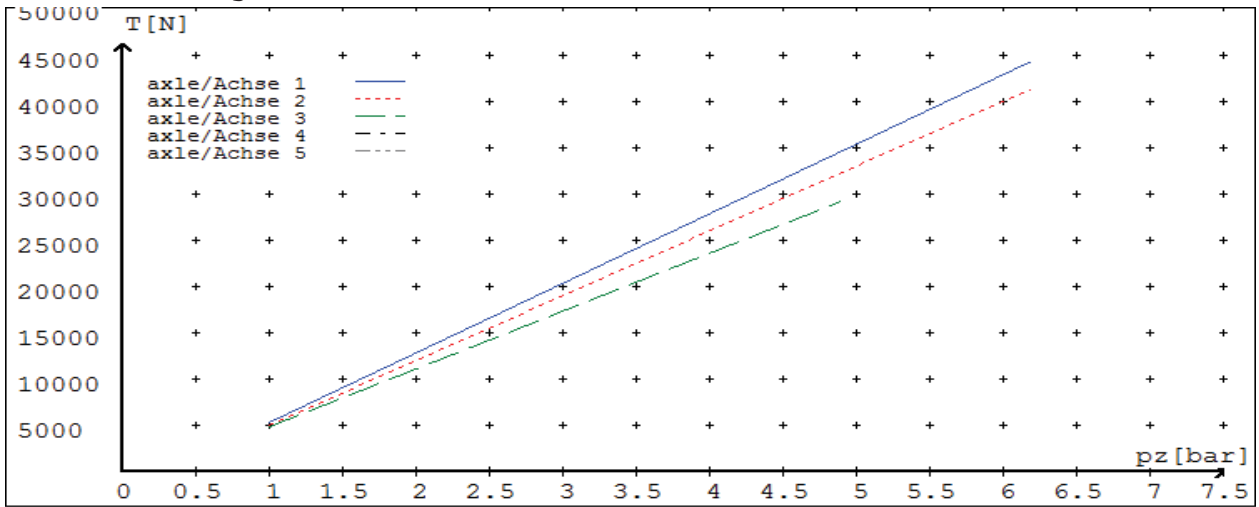Angabe der Referenzwerte für z = 0.5   für max rdyn: 421 mm
brake calculation no: TP 2016A date 02.07.2016
Bremsberechnung Nr: TP 2016A vom 02.07.2016

	Axle(s) / Achse(n)				
brake cylinder type (service / parking) Bremszylinder Typ (Betrieb / Fest)	18./	18./	T.14/24	T.14/24	14./
Maximum stroke smax = ...mm maximaler Hub smax = ...mm	64	64	64	64	64
Lever length = ...mm Hebellänge = ...mm	76	69.08	69.08	69.08	69.08