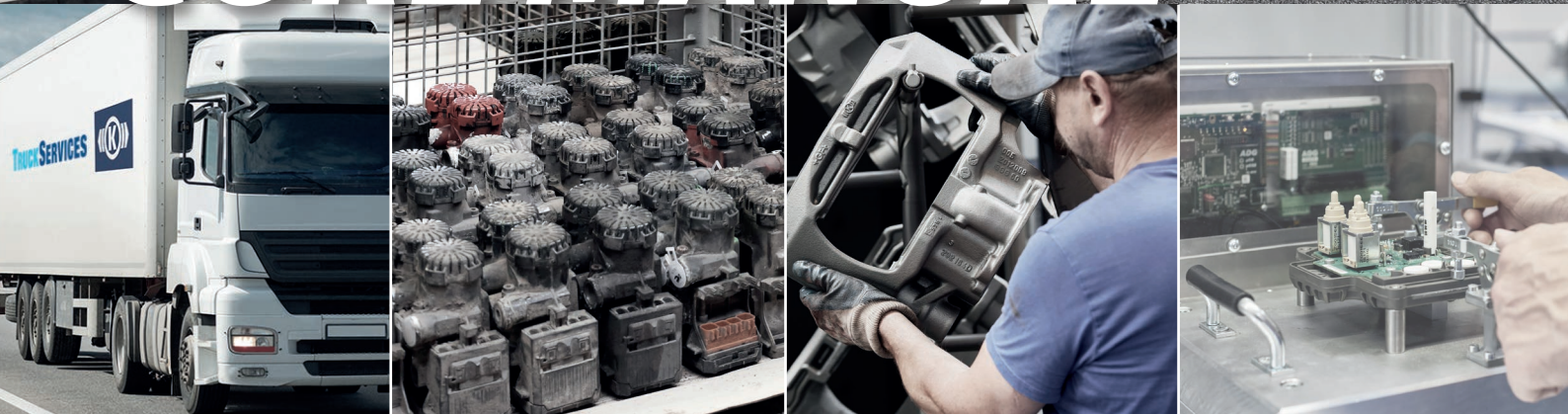


EconX[®] CORE MANUAL



GENUINE REMANUFACTURED PRODUCTS FOR OLDER
COMMERCIAL VEHICLES

GENUINE, ECONOMICAL, SUSTAINABLE

TRUCKSERVICES



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This disclaimer is an English translation of a German text, which should be referred to for all legal purposes.

Revision Details

Rev. 002	November 2012	Core groups changed and expanded, identification pages removed, general update.
Rev. 003	January 2017	Complete revision and layout updated.

1 INTRODUCTION

During recent years Knorr-Bremse has increased its efforts to collect Cores¹⁾ back from the market.

The main driving forces behind this philosophy are:

- To ensure the availability of high quality Knorr-Bremse EconX (genuine remanufactured) products in the market place
- To prevent broken, damaged or worn out safety-critical products being misused for reconditioning activities by non-authorized parties
- Protect customers from potential safety issues that could arise from non-authorized parties repairing or reconditioning Cores
- Environmental responsibility: Promoting a circular and sustainable economy by minimizing waste and CO₂ Emissions²⁾

In order to support this approach, it is therefore important that the Core is returned, following the Knorr-Bremse Core Program and procedures. In this context, and to facilitate the whole process apart from other Core related documents and tools, the Knorr-Bremse Commercial Vehicle System (CVS) Core Manual has been created.

This Core Manual covers following topics:

1	Introduction	3
2	Knorr-Bremse Core Program	4
3	Core Acceptance	7
4	Packaging Guideline for Cores	9
5	Core Group Classification & Identification	10
6	Core Account Reports	16
7	Appendix	18

¹⁾ APRA Definition of CORE: "A core is a previously sold, worn or non-functional product or part, intended for the remanufacturing process. During reverse logistics, a core is protected, handled and identified for remanufacturing to avoid damage and to preserve its value. A core is not waste or scrap and is not intended to be reused before remanufacturing." [REMANUFACTURING ASSOCIATIONS AGREE ON INTERNATIONAL INDUSTRY DEFINITION 2016]

²⁾ Knorr-Bremse follows the circular economy strategy of the EU Commission and executes extensive Life Cycle Assessments to analyze the CO₂ footprints of Knorr-Bremse products

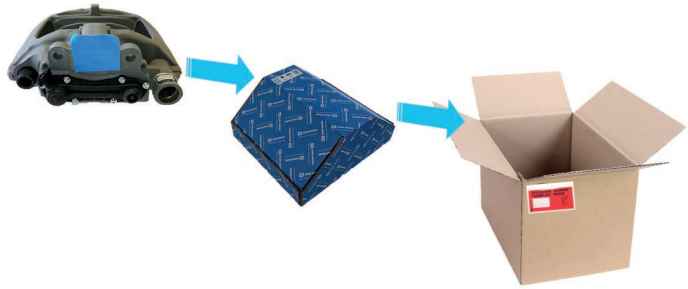
2 KNORR-BREMSE CORE PROGRAM

2.1 Important information regarding the Core Program

Which products are surcharged?	<ul style="list-style-type: none"> › Surcharged product part numbers are shown in the Knorr-Bremse Aftermarket Price List and are marked by Core Groups
Core Group	<ul style="list-style-type: none"> › Group of (interchangeable) products, which include all products in the Aftermarket Price List, the predecessor, successors and interchangeable products › Every returned Core part of the Core Program is assigned to a Core Group
Core Surcharge Value	<ul style="list-style-type: none"> › Surcharge Values are defined by Core Group and can be requested at the Knorr-Bremse Sales Representative › Shown as a separate line on the invoice › Term of payment of the Core Surcharge Value as defined on the invoice › The Core Surcharge is based on the assumption that a Core will be returned to Knorr-Bremse CVS for each product purchased within the Core Return Window
Core Return Window	<ul style="list-style-type: none"> › Validity window of the Core Surcharge Value in the Core Account: 12 months from the end of the invoicing month › A Core needs to be returned and registered within this time window at the central Core collection point Knorr-Bremse Liberec
Core Validity Window	<ul style="list-style-type: none"> › Validity window of the returned Core in the Core Account: 24 months from the end of the Core registration month › If there are sufficient surcharged purchases in the Core Account within this time window, a credit will be given
Core Account	<ul style="list-style-type: none"> › Shows the balance between surcharged purchases and returned Cores › Set up per Core Group
Core Reporting	<ul style="list-style-type: none"> › Monthly reports with the status of the Core Account can be found in the ePortal account or can be requested at the local contact for Cores › Refer to section Core Account Reports
Core Surcharge Crediting	<ul style="list-style-type: none"> › At month end a credit is given if there is a match between a surcharged purchase and returned Core within one Core Group › Credit is given against the oldest outstanding surcharge value – First in First out
Transfer of Ownership/Property	<ul style="list-style-type: none"> › The Transfer of Ownership/Property of the returned Core takes place with the handover to the forwarding agent › The Goods Receipt is confirmed with a Core Acknowledgement, which is emailed after the shipment has been completely processed at Knorr-Bremse Liberec Note - incoming core shipments are examined to check quantity and quality
Core Acceptance	<ul style="list-style-type: none"> › The Core Acceptance Guideline shows which conditions of a Core are accepted › Cores with grade "Scrap" will not be booked in the Core Account and will not be credited or sent back › Cores with grade "Good" will be booked in the Core Account › Both grades are reported on the Core Acknowledgement
Due Date of surcharged purchases	<ul style="list-style-type: none"> › Validity date of surcharge values under consideration of the Core Return Window › The option to return a Core and to receive a credit expires after that date
Due Date of Core returns	<ul style="list-style-type: none"> › Validity date of the returned Core under consideration of the Core Validity Window › A returned Core expires after that date and a surcharged purchase will not be credited against this return

2.2 Core Return Processing at a glance

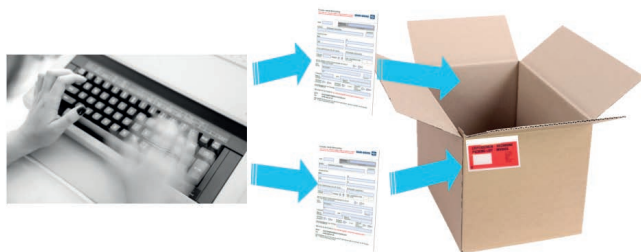
- 1** Collect Cores and pack them according to the Knorr-Bremse Packaging Guideline.



- 2** a. Fill out the Core Return Request form.
(Document No. Y071081 is available from:
www.knorr-bremsecvs.com » Download Documentation)
b. Request the Core Return Memo Number (CRM No.) from your responsible Knorr-Bremse contact for Cores (only required if ePortal is not accessible).



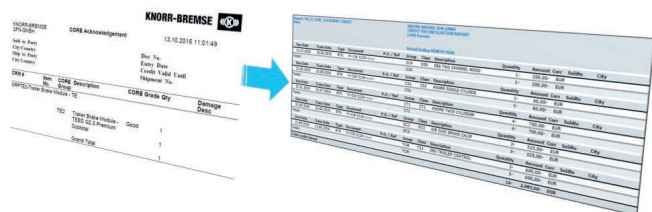
- 3** a. Fill out completely the Core Return Request form including the CRM No. (if ePortal is not accessible).
b. Attach the form in an envelope outside and inside each container. Failure to do so can result in a delay in having the Core return collected and processed in the system.
c. Send the form to the responsible Knorr-Bremse contact for Cores (only required if ePortal is not accessible).



- 4** Pick up of the Core shipment (collection is confirmed via email if it is organised by Knorr-Bremse).

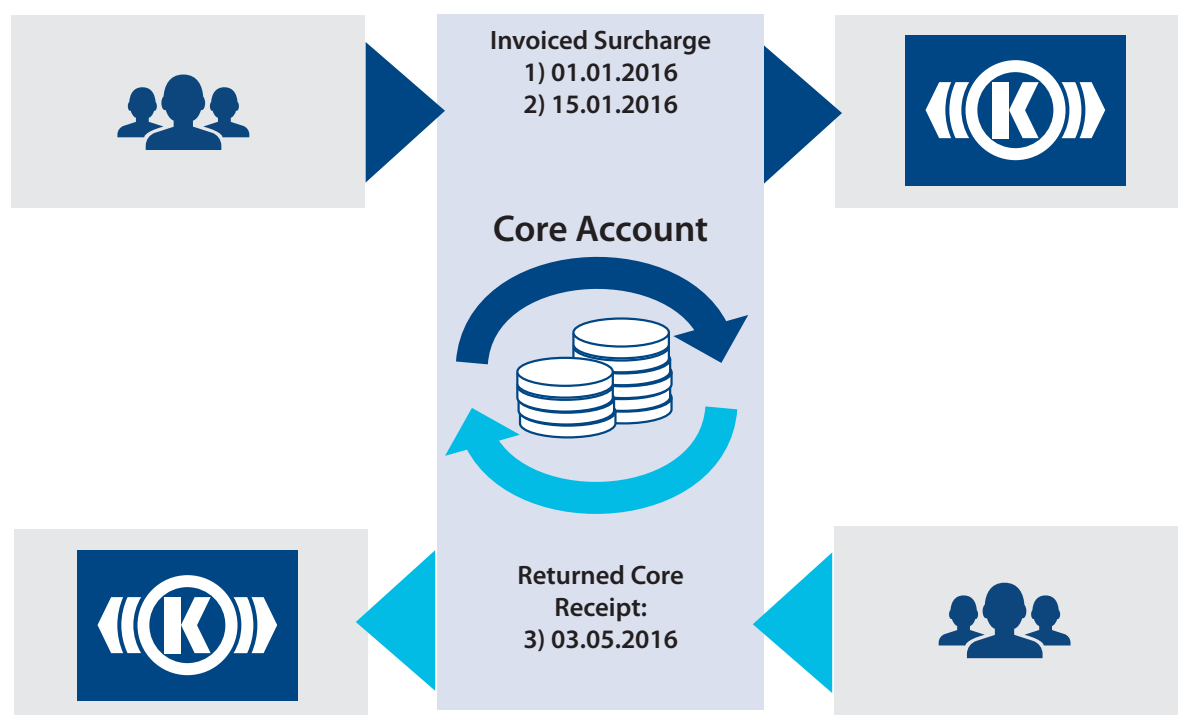


- 5** Knorr-Bremse sorts and grades the shipment. Check the Core Acknowledgement Report in your email inbox (the CRM No. can be used as a reference).



2 KNORR-BREMSE CORE PROGRAM

2.3 Core Accounting



Core Account - Core Group DC8

	Type	Surcharge Value	Quantity	Invoice/Return Date	Due Date	Comment
1	Purchase	175 €	1 pc	01.01.2016	31.01.2017	Oldest outstanding purchase
2	Purchase	175 €	1 pc	15.01.2016	31.01.2017	
3	Return	(-175 €)	1 pc	03.05.2016	31.05.2018	Core Return

4) Credit

1. Surcharged product of Core Group DC8, purchase invoiced at 01.01.2016. Due date: 12 months from the end of the invoicing date (Core Return Window). A Core needs to be registered at Knorr-Bremse Liberec until the Due Date: 31.01.2017.
2. Surcharged product, invoiced at 15.01.2016. Due Date: 31.01.2017.
3. Returned Core, registered at 03.05.2016. The returned Core will be valid in the Core Account for 24 months. Due Date: 31.05.2018.
4. Core credit is given at 31.05.2016 since there is a match between a surcharged purchase and a Core return. The credit is given against the oldest outstanding surcharged purchase – event 1). After the credit is given, 1) and 3) is cleared from the Core Account.

3 CORE ACCEPTANCE

Why would Knorr-Bremse reject Cores that have been returned?

1. No Core Return Request form is attached to the carrier
2. The returned Core is not part of the Core Program (please refer to Core Group Classification & Identification)
3. A non-Knorr-Bremse Core is not interchangeable with a Knorr-Bremse product ¹⁾
4. Core has been reconditioned by a non-authorized 3rd party
5. Core suffered major damage
6. Core suffered heavy outside or inside corrosion
7. Core returned is incorrectly or incompletely assembled or in a disassembled condition, e.g.:
 - a. Calipers not returned complete, e.g. without adjuster in place
 - b. EBS modules or Electronic Control Units, Electronic Air Control Units and Electronic Clutch Actuators not returned fully assembled and complete



¹⁾ Knorr-Bremse reserves the right to accept non-Knorr-Bremse Core within certain Core Groups, if interchangeable with Knorr-Bremse products as long as it is returned as a result of the sale of an equivalent Knorr-Bremse product. See the Cross Reference section of the website www.knorr-bremseCVS.com for interchangeable products or contact the local Knorr-Bremse Sales Representative for further details.

3 CORE ACCEPTANCE

Rejected Cores will be flagged with the Core Grade "Scrap" on the Core Acknowledgement with the reason of the rejection (see: Figure 1: Core Acknowledgement). Rejected Cores will not be credited.

Accepted Cores will be flagged with the Core Grade "Good". Knorr-Bremse decides whether a Core is accepted or rejected.

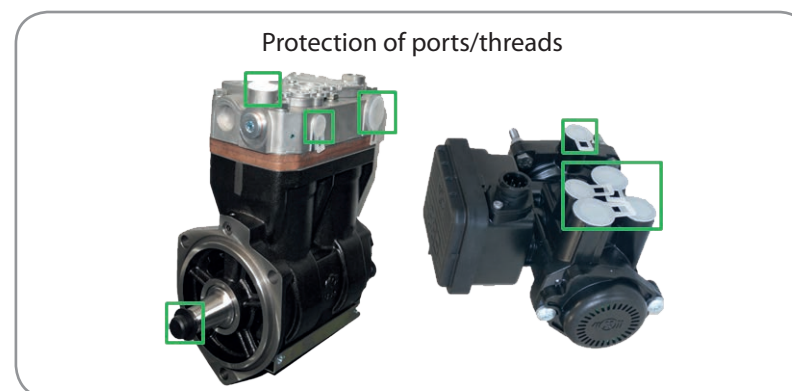
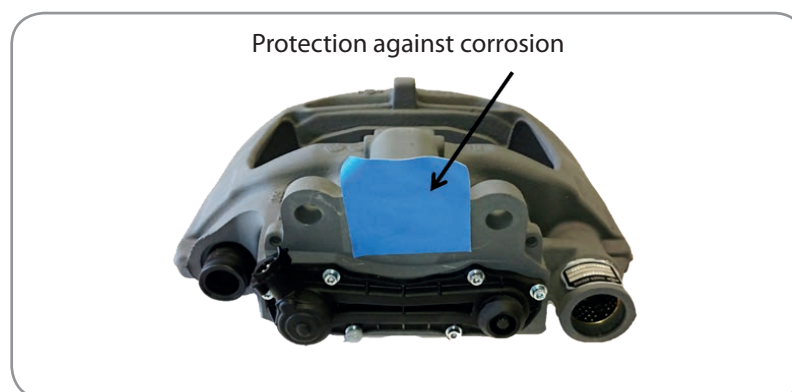
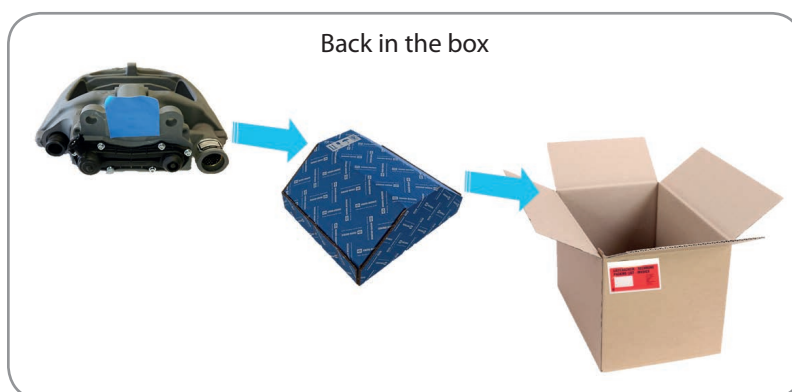
CORE Acknowledgement							
Sold to City/Country				Doc No. Entry Date Credit Valid Until Shipment No. Delivery date			
Ship to Party City/Country							
CRM No.	Item No.	CORE C1	Description	CORE Grade	Amount	Qty	Damage Desc
GRPCT1-Compressr (Twin)							
YY-CW-1234-10		CT1	Compressor (Twin)	Good	1,150.00	10	
YY-CW-1234-20		CT1	Compressor (Twin)	Scrap	0.00	1	INCOMPLETE
YY-CW-123-30		CT1	Compressor (Twin)	Scrap	0.00	1	CORROSION
			Subtotal		1,150.00	12	

Figure 1: Core Acknowledgement

4 PACKAGING GUIDELINE FOR CORES

Ensure that containers are adequately sealed or banded for transportation using plastic strapping or banding (no metal). Unsafe containers will be returned at the expense of the consignor.

- › Back in the box for all exchange products delivered in boxes
- › Protect caliper Cores against inner corrosion by using the sticker delivered with the exchange product
- › Protect ports/threads by using protection caps delivered with the exchange product
- › Store Cores in a dry and clean place to avoid corrosion after dismounting from the truck
- › Heavy Cores on bottom, light ones on top, separated by interlayers




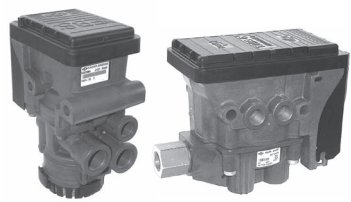
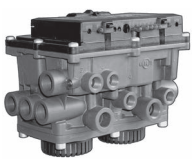






5 CORE GROUP CLASSIFICATION & IDENTIFICATION

Fig. (Example)	Description	Core Group
	Air Dryers	AD1
	Filter Cartridges	ADC
	Electronic Clutch Actuators	CA1
	Clutch Compressors	CC1
	Single Cylinder Compressors	CS1
	Twin Cylinder Compressors	CT1
	Screw Compressors	SC1



Fig. (Example)	Description	Core Group
	Air Disc Brakes (SM, SL Calipers)	DC2
	Air Disc Brakes (SB7 radial Calipers)	DC4
	Air Disc Brakes (SB5, SN5 Calipers)	DC5
	Air Disc Brakes (SB6, SN6 Calipers)	DC6
	Air Disc Brakes (SK7 Calipers)	DC7
	Air Disc Brakes (SB7 axial, SN7 Calipers)	DC8

5 CORE GROUP CLASSIFICATION & IDENTIFICATION

Fig. (Example)	Description	Core Group
	Electronic Air Control Units (EAC)	EA1
	Electronic Air Processing Units (EAC) - Second Generation	EA2
	EBS Electronic Control Units (ECU)	ECU
	EBS Foot Brake Modules	FBM
	Spring Brakes and Spring Portions S-Cam, Wedge	SB1
	Brake Servo Units	SB3

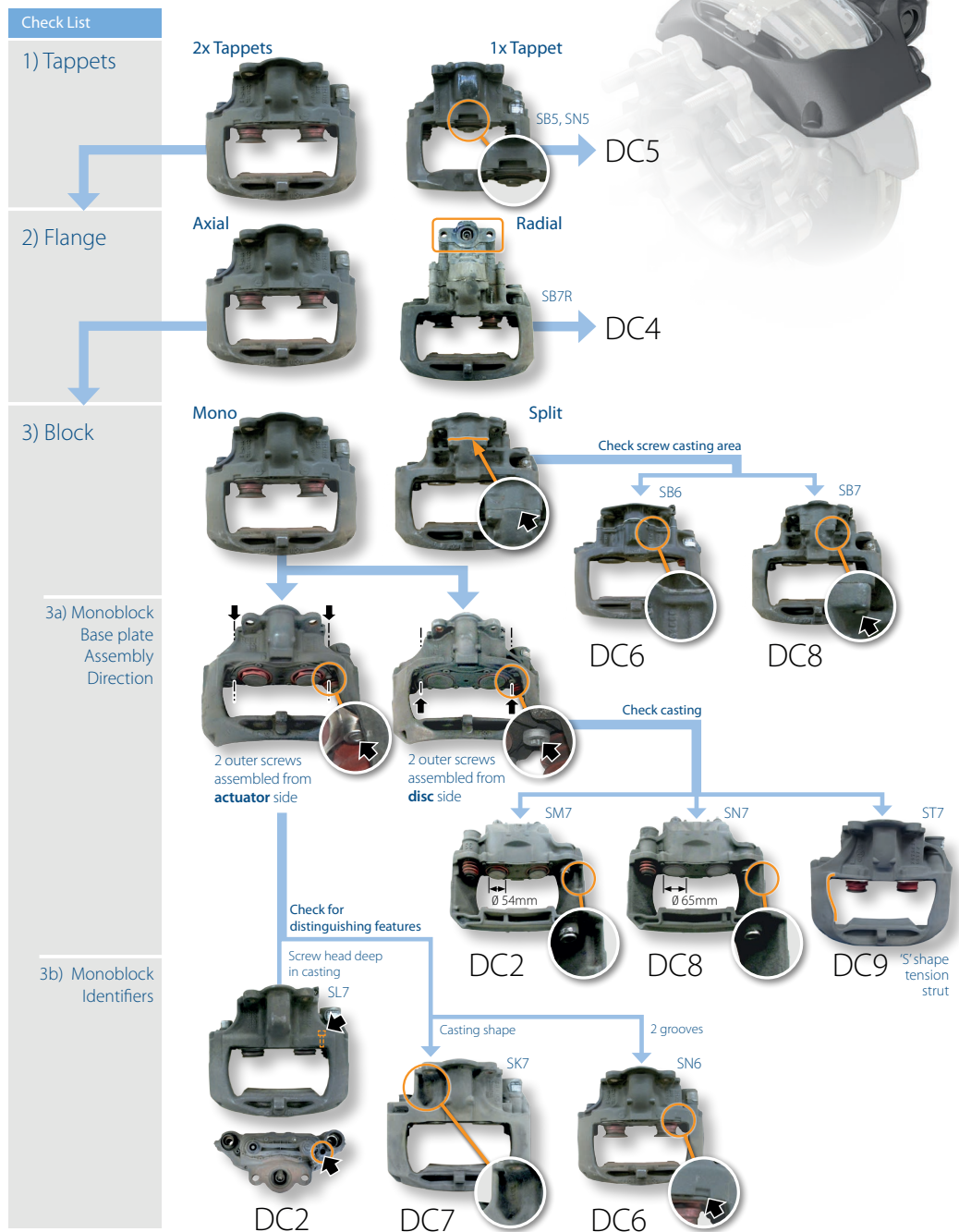
Fig. (Example)	Description	Core Group
	EBS Trailer Control Modules	TCM
	Trailer Electro-Pneumatic Module - 4S/3M Standard / Premium	TE1
	Trailer Brake Module - TEBS 4	TE2
  = 2.0   = 2.1 Trailer Brake Module - TEBS G2.0, G2.1 Standard / Premium		
 = Standard, Standard Plus  = Premium Trailer Brake Module - TEBS G2.2 Standard / Standard Plus / Premium		

5 CORE GROUP CLASSIFICATION & IDENTIFICATION

Fig. (Example)	Description	Core Group
	EBS One Channel Modules	1CH
	EBS Two Channel Modules	2CH

Identification of Air Disc Brakes (Document No. Y252351 available from www.knorr-bremsecvs.com > Download Documentation):

Core Group Identification of Knorr-Bremse Air Disc Brake Calipers



Y059594-01.001

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6 CORE ACCOUNT REPORTS

Core Summary Report

Provides a monthly overview about total balance of the Core Account by Core Group.

The report shows the Core purchases, returns and adjustments during the month selected in the report date field. In addition following information are available: Current month-end balance, expired items, issued credits ¹⁾ and a three month outlook defining Cores to be returned each month.

Report: YYS_R_CORE_STATEMENT-SUMMARY Date:					KNORR-BREMSE SFN-GMBH GROUP SUMMARY REPORT CORE Parent:					
Period Ending MONTH YEAR										
GRP	Previous Balance	Purchases	Returns	Adjustments	Expired Items	Current Balance	Credits Issued	Due SEP	Due OCT	Due NOV
1CH EBS One Channel Module										
	1.700,00	0,00	0,00	0,00	0,00	1.700,00	0,00	0,00	0,00	400,00
	12	0	0	0	0	12	0	0	0	4
2CH EBS Two Channel Module										
	2.600,00-	200,00	0,00	0,00	0,00	2.400,00-	200,00-	0,00	0,00	0,00
	13-	1	0	0	0	12-	1-	0	0	0
CS1 Compressor (Single)										
	820,00	0,00	60,00-	0,00	0,00	760,00	60,00-	0,00	0,00	60,00
	6	0	1-	0	0	5	1-	0	0	1
CT1 Compressor (Twin)										
	635,00-	700,00	0,00	0,00	0,00	65,00	700,00-	0,00	0,00	0,00
	2-	4	0	0	0	2	4-	0	0	0
DC3 Caliper, Rationalised										
	1.575,00	0,00	525,00-	0,00	0,00	1.050,00	525,00-	0,00	350,00	0,00
	9	0	3-	0	0	6	3-	0	2	0
DC6 Caliper, Rationalised - S										
	525,00	525,00	0,00	0,00	0,00	1.050,00	0,00	0,00	0,00	0,00
	3	3	0	0	0	6	0	0	0	0

Core Group Detail Report

Shows current month activity for each Core Group. The details include Knorr-Bremse document number (invoice number or CRM No.), customer purchase order and part numbers for purchases.

Report: YYS_R_CORE_STATEMENT-COREGRP					KNORR-BREMSE SFN-GMBH CORE GROUP DETAIL REPORT					
Period Ending MONTH YEAR										
GRP	Previous Balance	Purchases	Returns	Adjustments	Expired Items	Current Balance	Credits Issued	Due SEP	Due OCT	Due NOV
CS1 Compressor (Single)										
	820,00	0,00	60,00-	0,00	0,00	760,00	60,00-	0,00	0,00	60,00
	6	0	1-	0	0	5	1-	0	0	1
Due Date	Trans Date	Type	Document	P.O. / Ref	Class	Part Number	Quantity	Amount	Curr	Soldto
New Returns										
31.08.2018	23.08.2016	RTN	16-32-0051-0105		CS2	CORE_CS2	1-	60,00-	EUR	

¹⁾ In countries where standard credit notes are not issued, simulated values are shown in the "Credits Issued" column.


Reconciliation Report ¹⁾

This report gives specific detail of any current month's debit or credit. It shows the detail for the transactions that produced the debit or credit.

Report: YYS_R_CORE_STATEMENT-CREDIT Date:					KNORR-BREMSE SFN-GMBH CREDIT RECONCILIATION REPORT CORE Parent:						
Period Ending MONTH YEAR											
Due Date	Trans Date	Type	Document	P.O. / Ref	Group	Class	Description	Quantity	Amount	Curr	Soldto
31.01.2018	30.06.2016	RTN	YY-CW-1234-xxxx		2CH	D50	EBS TWO CHANNEL MODU	1-	200,00-	EUR	
Totals					2CH			1-	200,00-	EUR	
Due Date	Trans Date	Type	Document	P.O. / Ref	Group	Class	Description	Quantity	Amount	Curr	Soldto
31.08.2018	23.08.2016	RTN	YY-CW-1234-xxxx		CS1	CS2	KNORR SINGLE CYLINDE	1-	60,00-	EUR	
Totals					CS1			1-	60,00-	EUR	
Due Date	Trans Date	Type	Document	P.O. / Ref	Group	Class	Description	Quantity	Amount	Curr	Soldto
31.01.2018	31.07.2016	RTN	YY-CW-1234-xxxx		CT1	CT2	KNORR TWIN CYLINDER	4-	700,00-	EUR	
Totals					CT1			4-	700,00-	EUR	
Due Date	Trans Date	Type	Document	P.O. / Ref	Group	Class	Description	Quantity	Amount	Curr	Soldto
31.08.2018	23.08.2016	RTN	YY-CW-1234-xxxx		DC3	DC3	AIR DISC BRAKE CALIP	3-	525,00-	EUR	
Totals					DC3			3-	525,00-	EUR	
Due Date	Trans Date	Type	Document	P.O. / Ref	Group	Class	Description	Quantity	Amount	Curr	Soldto
31.08.2018	23.08.2016	RTN	YY-CW-1234-xxxx		TCM	T23	EBS TRAILER CONTROL	3-	600,00-	EUR	
Totals					TCM			3-	600,00-	EUR	
Total Credits Issued								12-	2.085,00-	EUR	

¹⁾ This report is only relevant to customers whose country issue standard credit notes.

7.1 Core Return Request form


KNORR-BREMSE

Core Return Request

Please complete all details and attach this sheet on each pallet to enable a fluent crediting of your cores!

Date:

Customer No.

Customer Name

CONTACT Name

Email

Type of Packaging (EPAL, one-way, ...)

No. of Packages

Do you need transportation by Knorr-Bremse (min. 400 kg)? ☐

Collection Address

Goods Available Date

Fork Lift Required? ☐

CRM Number (generated by Knorr-Bremse)

Country Code

Tel.

Fax

Size of Freight (Length/Width/Height)

Total Weight (kg/shipment) (max. 850 kg/package)

Stackable? ☐

Yes ☐ No ☐

House No.

City

Post Code

Goods Available Time

Tail Lift Required? ☐

Yes ☐ No ☐

Please give details of vehicle access restrictions (e.g. max. vehicle size)

Please send this form to: (Note: only completely filled forms can be processed!)

This section should already be pre-filled by your local Knorr-Bremse core return team.


Email:


Fax:

If confirmation is not received within 48 hours (Monday - Friday) please contact us.

Core Description	Quantity	Weight [kg]	Comment
ABS - Trailer Control Module (T21-23, 40, 50, 70)	8		
Trailer Electro-Pneumatic Modules (TA1, TE1)	8		
Trailer Brake Modules (E40, EP0-2, ES0-2)	2		
	TE1	2	
	TE2	6	
Total			

Please note: Rejected core, e.g. Caliper without adjuster in place, will be scrapped without credit or further notice. See core manual (Y059594) for details.
Please ensure that your shipment is adequately secured for the transport.
With each core returned to Knorr-Bremse you contribute to a sustainable circular economy. Thank you!

Print Me 

Send via Email 

7.2 Core Acknowledgement

KNORR-BREMSE 
KNORR BREMSE **CORE Acknowledgement**
Sold to Party
City/Country
Ship to Party
City/Country
Doc No.
Entry Date
Credit Valid Until
Shipment No.

CRM No.	Item No.	CORE Group	Description	CORE Grade	Qty	Damage Desc.
GRPCT1-Compressr (Twin)						
YY-CW-1234 0XXX	10	CT1	Compressor (Twin)	Good	10	
YY-CW-1234 0XXX	20	CT1	Compressor (Twin)	Scrap	1	INCOMPLETE
YY-CW-1234 0XXX	30	CT1	Compressor (Twin)	Scrap	1	CORROSION
Subtotal					12	
Grand Total					12	

Additional Information:

Your local **TruckServices Workshops, Dealers and Branches** can be found anytime online at www.knorr-bremseCVS.com - or on a Smartphone with our Service Locator App (available for Android and iOS).

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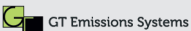
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