

Electronic Data Interchange (EDI) for business management applications

Electronic data interchange (EDI) ensures the optimum alignment of information flowing between all the commercial companies involved. Any information regarding company-to-company business processes can be made available to the relevant parties, without delay and with no additional processing problems as the volume of information increases.

To gain full advantage of electronic communication, the exchange of information must be integrated into the application systems.

Where data reception is normally carried out automatically, new measures are required to a certain degree, to ensure that no errors occur during the process. Such measures will include automatic plausibility tests, as well as a revision of the communication structures.

Electronic data exchange must be compatible with various application systems, transfer media and formats.

WebEDI: Information Interchange via Internet-Service

A web application can be used mainly for partner relations with a small number of transactions, to provide additional information for external users or for processes that require very close interaction in a user dialog.

The web application can be used from any desktop with internet browser.

(you will find detailed information in the internet at: www.kostal.com : ->partner->supplier->WebEDI)

1. **EDI : General**

Electronic data interchange for commercial paperwork in the automobile industry is widely carried out using the "Odette File Transfer Protocol (OFTP)". The use of this protocol requires the installation of a software system which can operate this protocol. The crucial functionality of OFTP lies in the management of transfer jobs, reception checks and the organisation of the linking structures.

Carriers for OFTP can be X.25, ISDN or TCP/IP links.

As a general rule, OFTP is incorporated within an EDI communication system, which will handle the management of systems used by the communicating parties, the interfaces to application systems and the execution of format changes.

The following information formats are used in the automobile industry :

VDA	(recommendations of the German Automobile Industry Association)
Odette	(European Standard for Data Exchange in the Automobile Industry) - converted to EDIFACT
EDIFACT	(Global Standard for EDI Information for various industrial sectors)

All the formats employed are character-oriented formats with hierarchically structured segments, collated into groups. The VDA format is based on data-fields of fixed length, while the other formats are variable.

The specific technical requirements for EDI communication with KOSTAL are set out in our Communication Agreement.

The KOSTAL Group

The technical setup of EDI connections between european partners and all KOSTAL companies worldwide is done via our EDI Center at Lüdenscheid. Partners in the american area will be setup at our EDI Center in Mexico.

Because all companies within KOSTAL group are responsible for their own partner communication from the application point of view, any general agreements for new relationships and changes in the EDI communication should be made in direct negotiation with the KOSTAL company involved. Setup of the EDI connection will be organized within our organisation.

For information on the basic principles of EDI communication, please contact the EDI Service at KOSTAL Holding (Germany).

Overview

KOSTAL group supports the following EDI messages:

In this document the KOSTAL companies will be identified by the following abbreviations:

KOSTAL Company	Short name
Germany Automobile:	LK

Germany Contact systems:	KKS
Germany Industrial electric:	KI
Ireland:	KOI
Great Britain:	KOB
Spain:	KOSPA
Czech Republic:	KOCR
Italy:	KITA
Mexico:	KOMEX
Brazil:	KOBRA
China:	KOCHI
Japan:	KOJA

Table 1

Szenario		Message type	Format	Sender	KOSTAL Company
obligat. in case of EDL	obligat. in case of VMI				
X	X	Forecast/Calloff	VDA4905	KOSTAL	LK, KKS, KI, KOI, KOB, KOSPA, KOCR, KOMEX, KOBRA, KOCHI
			EDIFACT DELFOR	KOSTAL	
X	X	Delivery note (ASN)	VDA4913	Supplier	LK, KKS, KI, KOI, KOB, KOMEX, KOCHI
			EDIFACT DESADV	Supplier	
		Selfbilling Invoice	VDA4908	KOSTAL	LK, KKS, KI, KOI, KOB, KOMEX
			EDIFACT INVOIC	KOSTAL	
	X	Stock balance (VMI)	EDIFACT INVRPT	KOSTAL	LK

Tabelle 2

2 Application Agreement (Version 1.1)

Agreements relating to information and applications.

2.1 Delivery Schedules

Delivery schedules are generated for all orders which refer to an agreed blanket contract. Agreements relating to the blanket contract are carried out by fax.

Schedules showing changes to the demand situation are issued each day. At somewhat longer intervals a complete overview is also issued, to ensure the validity of the current information-level regarding individual items.

Where orders have been delivered in full, a "No Requirement" schedule is issued (showing a call-off quantity of zero). If there are follow-on orders, a new requirement is issued, covered by a new order number.

The issue level is confirmed as a suffix to the material reference number. Thus, the material reference number is extended by a hyphen (-) and a 2-digit code to show the issue level - e.g., 66550000011311-01. If there are requirements for different issue levels, these are issued separately.

Requirements must be allocated by reference to the Supplier No., factory code, unloading point and Purchasing Order Number . Only a combination of these data will ensure a clear allocation.

Factory Codes :

Code	Text
001	KOSTAL Germany Automobile
003	KOSTAL Germany Contact Systems
004	KOSTAL Germany Industrial Electric
006	KOSTAL Ireland Abbeyfeale
007	KOSTAL Ireland Mallow
008	KOSTAL Mexico
010	KOSTAL Czech Republic
013	KOSTAL Spain

Codes Unloading points:

Code	Text
0001	Bellmerrei
0002	Halver
0003	Jünger
0004	Meinerzhagen
0005	Böblingen
0006	Wiesenstraße
0051	Hagen
0560	Rhenus Nürnberg
0570	Rhenus Dortmund
0015	Special handling
0040	Brasilien
0030	Cenkov
0032	Zdice

Liste contains only most important unloading points.

A complete list will be provided by our purchasing.

If you do not find the code you are looking for, you can ask your disponent at Kostal for the storage location.

Until further directive, the unloading point in the EDI messages will be built from the storage location with a leading „11“.
(i.e. 11001 or 11570 in the EDI message, instead of 0001 or 0570)

2.1.1 VDA 4905

The information message is described in detail in VDA Recommendation 4905. KOSTAL does not use any particular, special codings for the fields described here. See also Para. 2.1.1.3

If you do not have a copy of the VDA Recommendations, these can be obtained at a small charge from :

Druckerei Henrich
Schwanheimer Straße 110

60528 Frankfurt
Telefax: +49-(0)69-96777-159

Questions regarding their contents should be addressed to the Logistics Section of the VDA,
Tel. +49-(0)69-7570-283 or submitted via the Internet under :
www.vda.de (format descriptions can be requested under "other publications/VDA 4905")

2.1.1.1 **Parameters**

Virtual File Name: LAB.<Short name of Kostal company>.<Supplier code>
File format : Fix, 128 character/set
Character set : EBCDIC (ASCII by special agreement)

(please use your supplier code at KOSTAL for <Supplier code>, 6 digits without leading zero)
(please use the short name of the individual Kostal company, like given in table1 for <Short name>.
e.g.: LK for Germany and KOI for Ireland)

2.1.1.2 **Information Structure**

See VDA Recommendation 4905.

The following are used by KOSTAL :

511 1 x per transfer file
512 1 x per material number/issue level
513 1 x per material number/issue level
514 n x as long as divisions are available
518 n x as long as text is available (max. 5 repeats)
519 1x per transfer file

2.1.1.3 **Agreements**

The release "horizons" in set type 512 contain information in weeks (not in months).
KOSTAL material reference numbers are extended to include the issue level. If you handle the various issue levels in a different way (that is, not via the material reference number) you must break down the field for the customer's material reference number instead. In doing so, please bear in mind that delivery schedules can also be drawn up without an issue level. The main material number can also be of length 8.

2.1.2 **Edifice DELFOR**

2.1.2.1 **Parameters**

Virtual File Name: LAB.<Short name of Kostal company>.<Supplier code>
File format : unstructured
Character set : ASCII

(at the point shown as <supplier number> please enter your supplier number for KOSTAL : 6 digits without the initial 0)

2.1.1.1 **Information Structure**

Branching diagram, structure description and example :
KOSTAL Homepage :
<http://www.kostal.com/german/downloads/EDI-EDIFACT-DELFOR-92.1-english.PDF>

2.1.1.2 **Agreements**

KOSTAL material reference numbers are extended to include the issue level. If you handle the various issue levels in a different way (that is, not via the material reference number) you must break down the field for the customer's material reference number instead. In doing so, please bear in mind that delivery schedules can also be drawn up without an issue level for the material. The master material number can also be an 8-digit reference.

Material release and Production release correspond to general purchasing agreements of KOSTAL.
The classification in the SCC group is only informatory. This should not be used to control relevance for delivery. All schedule lines should be represented in the application system of the receiver and can get relevant for delivery with time proceeding.

ATTENTION:

The repetition factor of the SCC group is not restricted in our message. The limit of 50 repetitions is not applied. You must be able to process also more than 50 schedule lines.

The backlog quantity is in general no separate schedule line, but given as a sum in segment QTY+83. This quantity is still an open requirement and has to be delivered immediately.

2.2 Delivery Notes (ASN)

Every delivery is preceded by a EDI Delivery note. The message has to be sent when the truck leaves the supplier. The delivery should be accompanied by a paper document which should be a bill of loading like defined in VDA 4912 or actually a paper delivery note.

Pallets and inner packages have to carry a standardized label that fulfills KOSTAL shipping instructions. Information on labels have to correspond the contents of the EDI transmission. Your labels have to be checked in advance by our goods reception.

ATTENTION: delivery note number on the label has to be barcoded without leading zeros.

With the EDI delivery note Plant code, Unloading point and PO number have to be used corresponding to the contents of the calloffs previously received.

Please note: The KOSTAL reference numbers have to be used in any case, also if it refers to a single order that is not transmitted by EDI.

This references are:

- Kostal material number of the material delivered, including revision level, separated by a hyphen "-".
- 12-digit PO number, composed from No. of Scheduling agreement or single order and the last two digits of the line item no.
e.g.: Purchasing document: 5510000001
Line item: 00020
leads to PO number 55100000120
- Kostal plant code (see table)
- Kostal unloading point (see table)
- Kostal material number of all packing material that is used in the ASN message (a number with 14 digits, beginning with 719...)

Regard to fulfill the correct packing structure according the instructions provides with the message descriptions.

Packing structure will be checked when the message arrives at KOSTAL.

Especially the Handling Unit Identifications are essential. There has to be a unique identification for every inner and outer packaging unit.

Packing material numbers have to be used like specified by KOSTAL.

ASN for KOSTAL Germany for storage locations with HU-Management:

(this is at present: Kostal Automotive via Rhenus Dortmund and Kostal Contact Systems and Kostal Industrial Electric in Hagen)

- always with the whole packaging structure
- no mixed pallets
- only one item per delivery
- maximum length of delivery note number is 10.
- maximum length of handling unit number is 9.

2.2.1 VDA 4913

The information message is described in detail in VDA Recommendation 4913. KOSTAL does not use any particular, special codings for the fields described here. See also Para. 2.2.1.3

If you do not have a copy of the VDA Recommendations, these can be obtained at a small charge from :

Druckerei Henrich
Schwanheimer Straße 110
60528 Frankfurt
Telefax: +49-(0)69-96777-159

Questions regarding their contents should be addressed to the Logistics Section of the VDA,

Tel. +49-(0)69-7570-283 or submitted via the Internet under :

www.vda.de (format descriptions can be requested under "other publications/VDA 4913")

2.2.1.1 Parameters

Virtual File Name: LS.<Short name of Kostal company>.<Supplier code>

File format : Fix, 128 character/set

Character set : EBCDIC (ASCII by special agreement)

(at the point shown as <supplier number> please enter your supplier number for KOSTAL : 6 digits without the initial 0)

2.2.1.2 Information Structure

See VDA Recommendation 4913.

Please note: All deliveries within one transmission file has to be related to the same unloading point. Because we will decide by this code once for every file, if the message will be processed or not.

The following records are used by KOSTAL :

711 1 x per transfer file
712 1 x per shipment
713 1 x per delivery
714 1 x per article
715 for the first M-Label
715 for S-Label belonging to first M-Label (S-Label separate or from/to possible)
715 for the second M-Label
715 for S-Label belonging to second M-Label (S-Label separate or from/to possible)
[etc.]
Additional packing (lids or tops, if returnable) of the pallet should follow the 715 record of the pallet.
Additional packing (lids or tops, if returnable) of the box should follow the 715 record of the box.
719 1x per transfer file

Examples for packing structures:

LK01 Box on Europallet:

KOSTAL-Material	Handling Unit	Labeltype
from	to	
715 71947128131001	[...] 010471001 010471001 M	
715 71946000010001	[...] 010471002 010471017 S	
715 71947128131001	[...] 010471018 010471018 M	
715 71946000010001	[...] 010471019 010471034 S	
715 71947128131001	[...] 010471035 010471035 M	
715 71946000010001	[...] 010471036 010471051 S	
715 71947128131001	[...] 010471052 010471052 M	
715 71946000010001	[...] 010471053 010471068 S	

(simplified 715 records, in the message the records have to be generated in full extend according VDA4913)

Reels in Carton on Pallet, if carton is M-Label:

KOSTAL-Material	Qty	Handling Unit	Labeltype
from	to		
715 7194800000000000	[...] 1	010471001 010471001 M	
715 7193900000000000	[...] 15	010471002 010471017 S	
715 7194800000000000	[...] 1	010471018 010471018 M	
715 7193900000000000	[...] 15	010471019 010471034 S	
715 71947128131001	[...] 1	(Label ID is BLANK)	

(simplified 715 records, in the message the records have to be generated in full extend according VDA4913)

The pallet is not represented as a handling unit in this case, therefore the pallet has to be given separately to follow the stock balance of the packing material. Any of these additional packing (type BLANK) has to follow on a real HU record (type S or M).

One-way packing material that does not build a handling unit, has not to be represented in the message. But whenever used in the message, it has to be used with a valid Kostal material number

Mixed pallets:

It is not planned to use G-Labels, but you can use the following structure, if mixed pallets can not be avoided:

713 Delivery 1
714 Article A
715 71947128131001 [...] 010471001 010471001 M
715 71946000010001 [...] 010471002 010471017 S
713 Delivery 2
714 Article B
715 71946000010001 [...] 010471002 010471017 S
(Note: Delivery can have only one item, in case of different articles always a separate delivery)

The pallet is not repeated in this case. Use M-Label only for the first article. All other articles from that pallet should be represented only as first-level packing with S-Labels.

A second alternative is to use only the first-level-packing (= S-Label) in case of mixed pallets. Then the pallet can be represented as additional packing that is attached to one of the S-Labels.

2.2.1.3 Agreements

Using additional packing material as returnables requires the sequence of 715 records like described above.

The label identification (M or S) is deviating from standard VDA obligatory. That means that all inner and outer handling units (boxes and pallets) has to be indicated with "S" or "M" in record 715. Additional packing material, tops or lids, that do not represent a handling unit must have no label type (= BLANK).

2.2.2 Edifact DESADV

2.2.2.1 Parameters

Virtual File Name: LS.<Short name of Kostal company>.<Supplier code>
File format : unstructured
Character set : ASCII

(at the point shown as <supplier number> please enter your supplier number for KOSTAL : 6 digits without the initial 0)

2.2.2.2 Information Structure

Branching diagram, structure description and example :

KOSTAL Homepage :

<http://www.kostal.com/german/downloads/EDI-EDIFACT-DESADV-97A-english.PDF>

Shipment with assigned Delivery Notes in DESADV:

There has to be one transport per DESADV message.
The BGM segment corresponds to a shipment.

There should be only one article per delivery.

In this case there has to be one segment group of CPS+++4 segment per delivery.

Important: All packing material groups have to follow directly to the CPS+++4 group.

Only after these packing material groups, can be repeated CPS+++4 for the next delivery.

That is:

CPS+++4

LIN+...

CPS+++1

PAC+...

CPS+++3

PAC+...

CPS+++4

LIN+...

CPS+++1

etc.

If your ASN has no transport level, it is also possible to use the BGM segment for the delivery note number.

2.2.2.3 Agreements

Also in the EDIFACT format the limited length of delivery note and HU number is applied.

For parts requiring traceability, please use segment PIA with following qualifiers:

„1“ in PIA_4347

„EC“ in PIA_7143

2.3 VMI-Message

With Vendor-Managed-Inventory (VMI) the stock balance and the goods movements are supervised on responsibility of the supplier. The required deliveries to the warehouse are planned by the supplier as to guarantee that the stock is always within min/max limits.

For this purpose you will receive two EDI messages accompanying this process:

- a) forecast (DELFOR or VDA4905 as a VMI version, that means quantities are gross quantities)
- b) Inventory Report (INVRPT)

On Vendor Managed Inventory the calloff message is only a forecast for your MRP. The deliveries are created from your side on basis of the stock balance and goods movement information. This is represented in a daily INVRPT message that holds all stock information of the external warehouse.

- a) quantity in stock in categories „on hand“, „in quality check“ and „rejected“.
- b) all delivery numbers of your deliveries into the warehouse since the last report. (as references on header level)
- c) all withdrawals from the warehouse with quantity, date and handling unit number

Also you will get all identifications of the handling units in the warehouse. These HU-Numbers can be package identifications of S- and M-labels.

The forecast message does also contain quantities in the short-term period. These quantities can be used to calculate the reach of the current stock. It is responsibility of the vendor to supply the warehouse in an optimal way.

2.3.1 VDA

For the Inventory Report message VDA format is not supported at KOSTAL. The Forecast message can be send in VDA format as well.

2.3.2 Edifact INVRPT 97A

2.3.2.1 Parameter

Virtual File Name: VMI.<Short name of Kostal company>.<Supplier code>
File format : unstructured
Character set : ASCII

(please use your supplier code at KOSTAL for <Supplier code>, 6 digits without leading zero)
(please use the short name of the individual Kostal company, like given in table1 for <Short name>.
e.g.: LK for Germany and KOI for Ireland)

2.3.2.2 Information Structure

Branching diagram, structure description and example :
KOSTAL Homepage :
<http://www.kostal.com/english/downloads/EDIFACT%20INVRPT05%20engl.pdf>

2.3.2.3 Agreements

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2.3.3 Edifact DELFOR 97A

For the VMI process it is possible to receive the EDIFACT Forecast also in version 97A.

2.3.3.1 Parameter

Virtual File Name: FC.<Short name of Kostal company>.<Supplier code>
File format : unstructured
Character set : ASCII

(please use your supplier code at KOSTAL for <Supplier code>, 6 digits without leading zero)
(please use the short name of the individual Kostal company, like given in table1 for <Short name>.
e.g.: LK for Germany and KOI for Ireland)

2.3.3.2 **Information Structure**

Branching diagram, structure description and example :

KOSTAL Homepage :

<http://www.kostal.com/english/downloads/EDIFACT%20VMI%20DELFOR01%20engl.pdf>

2.3.3.3 **Agreements**

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2.4 Selfbill

In case of selfbilling there is not booked an invoice of a supplier, but the deliveries are billed on the basis of goods receipts by the customer.

The Selbill message gives notice of this account that can be used at the supplier for clearing the internal invoice.

You can receive this billing document from KOSTAL by EDI

The EDI message contains several selfbilling documents in one transmission with a summarized information at the end to cross check the amounts.

Additionally it is possible to receive a summarizing list as a paper document.

2.4.1 VDA 4908 Version 04

The information message is described in detail in VDA Recommendation 4913. KOSTAL does not use any particular, special codings for the fields described here. See also Para. 2.4.1.3

2.4.1.1 Parameter

Virtual File Name: GA.<Short name of Kostal company>.<Supplier code>

File format : Fix, 128 character/set

Character set : EBCDIC (ASCII by special agreement)

(please use your supplier code at KOSTAL for <Supplier code>, 6 digits without leading zero)

(please use the short name of the individual Kostal company, like given in table 1 for <Short name>.

e.g.: LK for Germany and KOI for Ireland)

2.4.1.2 Information Structure

See VDA recommendation 4908.

Used at KOSTAL:

821 1 x per Transmission file

822 1 x per Selfbilling document

823 1 x per Delivery

824 1 x per Article

829 1x per Transmission file

Each goods receipt will be billed separately. That means there is one selfbilling document per goods receipt.

2.4.1.3 Agreements

2.4.2 Edifact INVOIC 97A

2.4.2.1 Parameter

Virtual File Name: GA.<Short name of Kostal company>.<Supplier code>

File format : unstructured

Character set : ASCII

(please use your supplier code at KOSTAL for <Supplier code>, 6 digits without leading zero)

(please use the short name of the individual Kostal company, like given in table 1 for <Short name>.

e.g.: LK for Germany and KOI for Ireland)

2.4.2.2 Information Structure

Branching diagram, structure description and example :

Send a request to: edi-services@kostal.com

2.4.2.3 Agreements

3. **Communication Agreement (Version 1.0)**

Specific agreements regarding partners and communication paths.

3.1 **EDI Data Exchange Agreement**

With the establishment of the EDI connection, the following agreement is concluded :
(valid without signature)

KOSTAL Homepage :
<http://www.kostal.com/german/downloads/EDI-Terms-and-Conditions.PDF>

3.2 **EDI Parameter**

In order to implement the parameters of the EDI-connection it is necessary to complete a EDI Data Sheet.

KOSTAL Homepage :
<http://www.kostal.com/english/3-02-02-01.html>

Please complete and return to <mailto:edi-services@kostal.com> !
(if your data have not already been submitted)

On direct OFTP connection, we use the Start-Session-ID (SSID) as identification of the gateway
KOSTAL International: **00013000124KOSTAL01**

The KOSTAL companies use the Start-file-ID (SFID) for their identificaton:

00013000124KOSTAL01	KOSTAL Germany
00013000124KOSTAL01KOI	KOSTAL Ireland
00013000124KOSTAL01KOB	KOSTAL Great Britain
00013000124KOSTAL01KOSPA	KOSTAL Spain
00013000124KOSTAL01KOCR	KOSTAL Czech Republic
00013000124KOSTAL01KOMEX	KOSTAL Mexico
00013000124KOSTAL01KOBRA	KOSTAL Brazil
00013000124KOSTAL01KOCHI	KOSTAL China

For setup of connections via GEIS mailbox we use the same mailbox for all KOSTAL companies. The different routing is put into place by the filed Reverse Routing Address of the UNB segment.

(for example as Sender)

UNB+UNOA:2+00130001240001::LK+...	KOSTAL Germany Automotive
UNB+UNOA:2+00130001240001::KKS+...	KOSTAL Germany Connectors
UNB+UNOA:2+00130001240001::KI+...	KOSTAL Germany Industrial Electric
UNB+UNOA:2+00130001240001::KOI+...	KOSTAL Ireland
UNB+UNOA:2+00130001240001::KOB+...	KOSTAL Great Britain
UNB+UNOA:2+00130001240001::KOSPA+...	KOSTAL Spain
UNB+UNOA:2+00130001240001::KOCR+...	KOSTAL Czech Republic
UNB+UNOA:2+00130001240001::KOMEX+...	KOSTAL Mexico
UNB+UNOA:2+00130001240001::KOBRA+...	KOSTAL Brazil
UNB+UNOA:2+00130001240001::KOCHI+...	KOSTAL China

If you will need the customer number within the message a identification of the partenr, please give this information to the EDI service.
We will include your codes in the message.
Otherwise we will send the files with customer identification "KOSTAL" in the NAD segment and you have to identify by use of supplier code, plant code and unlaoding point.

3.3 **Introduction Date**

You will receive an individual letter to advise the introduction date planned for you. Or by mutual agreement.