


STN


## Patent Classification on

# STN<sup>®</sup>

Part I

Jeremias Gromotka


 CAS is a division of the American Chemical Society

 FIZ Karlsruhe  
Leibniz Institute for Information Infrastructure

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## Agenda

- Overview of patent classification systems
- International Patent Classification (IPC)
- National/Regional Classification Systems
  - European Classification (ECLA)
  - US National Classification (NCL)
  - Japanese File Index (FI)
  - Japanese File Forming Terms (F-Terms)
- Derwent Classification
- Chemical Abstracts Classification

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- Chemical Abstracts Classification

Please join us for  
**Patent Classification Part II**  
on May 13, 2:00 p.m. EDT

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- Overview of patent classification systems
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- Chemical Abstracts Classification

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## What is Patent Classification?

- A patent classification system is a formalized way to describe the contents of patent documents
  - hierarchical
  - alphanumerical code ('symbol')
  - designed to facilitate retrieval by content

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## Why use Patent Classification?

- Patent Classification
  - provides a concise subject code for the technology described in a patent document
  - breaks down patentable technology into manageable units
  - is independent of language and wording

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- The classification symbol
  - represents a searchable identifier for patents grouped together according to similarity of claimed subject matter
  - allows to gradually adjust precision by following the hierarchy in either direction
  - is assigned by the examiner, not the applicant

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## How to use Patent Classification?

### (1) Identify the appropriate classification system(s)

- depending on the documents of interest, not all classification systems may be applicable
- different classification systems offer different degrees of detail

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## How to use Patent Classification?

### (2) Identify the appropriate classification symbols

- use the online thesaurus
- research on patent offices' websites
- ANALYZE answer sets

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## How to use Patent Classification?

### Researching Patent Offices' Websites

- Most patent offices offer web-based tools to navigate and search 'their' classification system

#### **IPC**

<http://www.wipo.int/classifications/ipc/ipc8/?lang=en> (EN, FR)

<http://depatisnet.dpma.de/ipc/> (DE)

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## How to use Patent Classification?

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#### **ECLA**

[http://v3.espacenet.com/eclasrch?locale=en\\_EP](http://v3.espacenet.com/eclasrch?locale=en_EP) (EN, DE, FR)

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#### **US NCL (USPC)**

<http://www.uspto.gov/go/classification/> (EN)

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#### **JP FI & F-Term**

[http://www5.ipdl.inpit.go.jp/pmgs1/pmgs1/pmgs\\_E](http://www5.ipdl.inpit.go.jp/pmgs1/pmgs1/pmgs_E) (JP, EN)

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#### **Thomson Reuters (Scientific) Classification**

<http://scientific.thomson.com/mcl/> (EN)

[http://www.stn-international.com/fileadmin/be\\_user/STN/pdf/search\\_materials/patents/derwentclass.pdf](http://www.stn-international.com/fileadmin/be_user/STN/pdf/search_materials/patents/derwentclass.pdf)

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## How to use Patent Classification?

### Researching Patent Offices' Websites

- Most patent offices offer web-based tools to navigate and search 'their' classification system

#### **Chemical Abstracts Section Codes**

<http://www.cas.org/products/print/ca/casections.html> (EN)

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## How to use Patent Classification?

### (2) Identify the appropriate classification symbols

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## How to use Patent Classification?

### (3) Use classification symbols or ranges to complete your search strategy.

- use classification symbols as catchall for different languages, spellings and synonyms
- use classification symbols to minimize false hits and defuse homonyms
- ANALYZE the technological focus of an answer set

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## How to use Patent Classification? Catchall Functionality (OR)

### **Search Question:**

We're looking for vehicle headlights.

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## How to use Patent Classification? Catchall Functionality (OR)


```
=> s headlight# or head(W)light# or head(W)light#
or head(W)lamp# or frontlight# or frontlight#
or mainlight# or main(W)light# or main(W)light#
(2A)(automobile# or vehicle# or car# or car#)
or vehicular(W)anterior(W)illuminat
```

Keyword searching  
alone missed (e.g.):  
fog lights  
search lights  
projectors  
illuminators  
light units  
...

```
L1      48220 HEADLIGHT# OR HEAD(W)LIGHT# OR HEAD(W)LIGHT#
HEAD(W)LAMP# OR FRONTLIGHT# OR FRONTLIGHT# OR FRONTLIGHT#
...
```

```
=> s l1 or B60Q0001-04+NT/IPC or B60Q0001-04?/ECLA or
X22-B01+NT/MC
```

```
L2      52649 L1 OR B60Q0001-04+NT/IPC or B60Q0001-04?/ECLA or X22-
B01+NT/MC
```


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## How to use Patent Classification? Removing False Hits (AND)

```
...(lamp# or light#)(2A)(automobile# or vehicle# or car#)...
```

### Will retrieve:

L2 ANSWER X OF 52649 WPINDEX COPYRIGHT 2009 THOMSON REUTERS on STN  
USE. . . . lamp used as front illuminating lamp of vehicles.

L2 ANSWER X OF 52649 WPINDEX COPYRIGHT 2009 THOMSON REUTERS on STN  
TI. . . high-intensity discharge vehicle lamp, has mounting module connected. . .

L2 ANSWER X OF 52649 WPINDEX COPYRIGHT 2009 THOMSON REUTERS on STN  
NOV NOVELTY - The motor vehicle driving light device has a driving light. . .

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## How to use Patent Classification? Removing False Hits (AND)

```
...(lamp# or light#)(2A)(automobile# or vehicle# or car#)...
```

### but also:

L2 ANSWER X OF 52649 WPINDEX COPYRIGHT 2009 THOMSON REUTERS on STN  
TI Vehicle rear light has reflectors and plates which . . .

L2 ANSWER X OF 52649 WPINDEX COPYRIGHT 2009 THOMSON REUTERS on STN  
NOV. . . . a roof carrier of the vehicle. A UV lamp is installed inside the housing.

L2 ANSWER X OF 52649 WPINDEX COPYRIGHT 2009 THOMSON REUTERS on STN  
TI Display device for motor vehicle, has light-guide plate having lens that guides. . .

L2 ANSWER X OF 52649 WPINDEX COPYRIGHT 2009 THOMSON REUTERS on STN  
TI. . . drum brake apparatus for light vehicle e.g. bicycle, wheelchair has elastic. . .

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## How to use Patent Classification? Removing False Hits (AND)

```
...((lamp# or light#)(2A)(automobile# or vehicle# or car#) and B60Q0001-04+NT/IPC)...
```


Removes hits that are not classified as headlights.

L2 ANSWER X OF 52649 WPINDEX COPYRIGHT 2009 THOMSON REUTERS on STN  
TI F21V0029-00 has reflectors and plates which . . .

L2 ANSWER X OF 52649 WPINDEX COPYRIGHT 2009 THOMSON REUTERS on STN  
NOV. . . . a roof carrier of the B60H0003-00 is installed inside the housing.

L2 ANSWER X OF 52649 WPINDEX COPYRIGHT 2009 THOMSON REUTERS on STN  
TI Display device for motor B60K0035-00 guide plate having lens that guides. . .

L2 ANSWER X OF 52649 WPINDEX COPYRIGHT 2009 THOMSON REUTERS on STN  
TI . . drum brake apparatus F16D0051-00 . bicycle, wheelchair has elastic. . .

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## How to use Patent Classification? Removing False Hits (AND)

```
...((lamp# or light#)(2A)(automobile# or vehicle# or car#) and B60Q0001-04+NT/IPC)...
```

**CAVEAT:**  
Removing hits always harbors the  
risk of losing relevant results!

B60Q0001-22 (lights) for reverse drive  
B60Q0001-24 (lights) for lighting other areas than only the way ahead  
H01K0007-02 (lamps) for producing a narrow beam of light, . . .  
i.e. searchlights

are not covered by B60Q0001-04+NT, but may prove relevant.

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- use classification symbols as catchall for different languages, spellings and synonyms
- use classification symbols to minimize false hits and defuse homonyms
- ANALYZE the technological focus of an answer set

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## How to use Patent Classification? Homonym Disposal (AND)

### **Search Question:**

We're looking for vehicle antilock braking systems.


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## How to use Patent Classification? Homonym Disposal (AND)

```
=> s (((antilock or anti(w)lock)
      (2a)brak?(2a)system#) or abs)/ti,ab
L3      18877 (((ANTILOCK OR ANTI(W)LOCK)(2A)BRAK?(2A)SYSTEM#...
```

```
=> s L3 and B60T/ipc      B60T      VEHICLE BRAKE CONTROL SYSTEMS OR PARTS THEREOF; BRA
of electrodynamic brake systems B60L 7/00; conjoint control of brakes and other
ELEMENTS ON VEHICLES IN GENERAL; PORTABLE DEVICES FOR
MODIFICATIONS TO FACILITATE COOLING OF BRAKES [1.81]
L4      2928 L3 AND B60T/IPC
```

```
=> s l3 not l4
L5      15949 L3 NOT L4
L5      ANSWER X OF 52649 WPIINDEX COPYRIGHT 2009      THOMSON REUTERS on STN
NOV. . . . (PA66) or acrylonitrile butadiene styrene (ABS) plastic.
L5      ANSWER X OF 52649 WPIINDEX COPYRIGHT 2009      THOMSON REUTERS on STN
USE. . . . (!) comprises neutralising egg yolk antibodies (ABs) specific for the infectious
agent. . .
```


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## How to use Patent Classification? Analyzing answer sets

### Search Question:

From what areas do all these other ABS' come from?

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## How to use Patent Classification? Analyzing answer sets

```
=> ana l5 ipc len 4
L6          ANALYZE L5 1- IPC LEN 4 :      564 TERMS

=> d -5
L6          ANALYZE L16 1- IPC LEN 4 :      564 TERMS
```

TERM #	# OCC	# DOC	% DOC	IPC	
1	34613	3870	24.26	C08L	<b>C08L</b> COMPOSITIONS OF MACROMOLECULAR COMPOUNDS based on polymerisable monomers <b>C08F</b> , <b>C08G</b> ; p
2	9611	2443	15.32	C08K	<b>C08K</b> USE OF INORGANIC OR NON-MACROMOLECULAR O <b>A01H</b> , pharmaceuticals, cosmetics <b>A61K</b> ; explosives <b>C06B</b> ; paints
3	8337	1687	10.58	B29C	<b>B29C</b> SHAPING OR JOINING OF PLASTICS; SHAPING OF 'SU SHAPED PRODUCTS, e.g. REPAIRING (working in the ma
4	6238	1263	7.92	C08F	<b>C08F</b> MACROMOLECULAR COMPOUNDS OBTAINED BY RE (production of liquid hydrocarbon mixtures from lower carbon num
5	4977	931	5.84	G11B	<b>G11B</b> INFORMATION STORAGE BASED ON RELATIVE MOVE values in a way that does not require playback through a transduc paper tape, or using unit records, e.g. punched or magnetically m circuits for coupling output of reproducer to radio receiver <b>H04B 1 H04R</b> )

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## How to use Patent Classification? Analyzing answer sets

### Search Question:

What's the technological focus of  
Novo Nordisk AS?

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## How to use Patent Classification? Portfolio Analysis

```
=> s novo-c/paco
L1          3429 NOVO-C/PACO
=> ana l1 mc len 7
L2          ANALYZE L1 1- MC LEN 7 :    1628 TERMS
=> d
L2          ANALYZE L1 1- MC LEN 7 :    1628 TERMS
```

TERM #	# OCC	# DOC	% DOC	MC	DEF
1	1310	706	20.59	D05-H12	DNA, CDNA, TRANSFER VECTORS, RNA
2	806	678	19.77	D05-H17	RECOMBINANT PROTEIN/POLYPEPTIDE PRODUCTIO
3	753	665	19.39	D05-A02	OTHER ENZYME PROCESS
4	699	615	17.94	D05-H14	RECOMBINANT CELLS
5	501	482	14.06	D05-C03	ENZYMES BY FERMENTATION
6	451	280	8.17	B14-J01	CNS ACTIVE DRUGS
7	432	380	11.08	B04-C01	POLYPEPTIDES (GENERAL)

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## The International Patent Classification IPC

- Introduced in 1968
- Used by >100 patent authorities
  - Most widely used classification system
  - CORE and ADVANCED-level
- Hierarchical
  - non-expressive
- Revised on a regular basis
  - Reclassification of existing documents

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## IPC Core and Advanced Levels

### Advanced level

#### **G02C SPECTACLES**

- 5/00** . Constructions of non-optical parts
- 5/02 . Bridges; Browbars; Intermediate bars  
(nose-engaging surfaces 5/12)
- 5/04 . . with adjustable means
- 5/06 . . with resilient means
- 5/08 . . foldable
- 5/10 . . Intermediate bar or bars between  
bridge and side-members
- 5/12 . Nose pads; Nose engaging surfaces  
of bridges or rims
- 5/14** . Side-members
- 5/16 . . resilient or with resilient parts
- 5/18 . . reinforced
- 5/20 . . adjustable, e.g. telescopic
- 5/22** . Hinges (pivotal connection in  
general F 16 C 11/00)

### Core level

#### **G02C SPECTACLES**

- 5/00** . Constructions of non-optical parts
- 5/14 . Side-members
- 5/22 . Hinges (pivotal connection in  
general F 16 C 11/00)

From January 2006, many patent offices assign IPCs at the *Advanced Level*, while others assign IPCs at the *Core Level*.

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Now available in  
INSPEC on STN!


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## The International Patent Classification IPC

- Format
  - Alphanumerical code

A	NN	A	NNNN	/	NNNNN
Section	Class	Subclass	Group		Subgroup


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## The International Patent Classification IPC

- Format
  - Sections

A	B	C	D	E	F	G	H
Human Necessities	Performing Operations, Transporting	Chemistry; Metallurgy	Textiles; Paper	Fixed Constructions	Mechanical Engineering; Lighting Heating; Weapons; Blasting	Physics	Electricity

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# The International Patent Classification IPC

- Format
  - Example

(19) World Intellectual Property Organization International Bureau

(43) International Publication Date: 24 April 2008 (24.04.2008)

(10) International Publication No: WO 2008/046897 A

(51) International Patent Classification: **B65D 83/14** (2006.01) B65D 83/16 (2006.01)

(21) International Application Number: PCT/EP2007/061173

(74) Agents: WALKER, Ralph, Francis et al.; line, Corporate Intellectual Property (CN92) West Road, Brentford Middlesex TW8 9GS

B 65 D 83 / 14

Performing Operations, Transporting

Conveying, packing, storing, handling thin or filamentary material

Containers for storage or transport of articles or materials, e.g. bags, barrels, bottles, (...)

Containers or packages with special means for dispensing contents

for delivery of liquid or semi-liquid contents by internal gaseous pressure, i.e. aerosol containers (...)

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# Searching with IPC Format

(19) World Intellectual Property Organization International Bureau

(43) International Publication Date: 24 April 2008 (24.04.2008)

(10) International Publication No: WO 2008/046897 A

(51) International Patent Classification: **B65D 83/14** (2006.01) B65D 83/16 (2006.01)

(21) International Application Number: PCT/EP2007/061173

(74) Agents: WALKER, Ralph, Francis et al.; line, Corporate Intellectual Property (CN92) West Road, Brentford Middlesex TW8 9GS

```

=> S B65D83/14/IPC
L1      6157 B65D83/14/IPC
        (B65D0083-14/IPC)

=> S B65D83-14/IPC
L2      6157 B65D83-14/IPC
        (B65D0083-14/IPC)

=> S B65D0083-14/IPC
L3      6157 B65D0083-14/IPC

=> S B65D008314/IPC
L4      0 B65D008314/IPC

=> S B65D8314/IPC
L5      0 B65D8314/IPC
    
```

resolves different input formats.

Not all formats are accepted, though.

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## Searching with IPC codes Truncation

```

=> S B65D/IPC
L6      319413 B65D/IPC

=> S B65D0083/IPC
L7      27650 B65D0083/IPC

=> S B65D83/IPC
L8      0 B65D83/IPC

```

IPC symbols are automatically truncated at the subclass and the group level.

For group level truncation, the IPC code has to be used full length (8 digits).  
(Automatic truncation works only if the symbol stem is unambiguous.)

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## Searching with IPC codes Utilizing the Online Thesaurus

**Search Question:**

What classification symbols are used to describe antilock braking systems?

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## Searching with IPC codes Utilizing the Online Thesaurus

Step 1: Expand a keyword of interest in the /IPC-field.

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## Searching with IPC codes Utilizing the Online Thesaurus

```
=> e abs/ipc
```

E#	FREQUENCY	AT	TERM
--	-----	--	----
E1	0	1	ABRASIVE(S) * SELECTION OF ABRASIVE(S) PARTICLES FOR B LASTING/IPC
E2	0	1	ABRASIVE(S) * SOAPS AND DETERGENTS CONTAINING ABRASIVE (S)/IPC
E3	0	-->	ABS/IPC
E4	0	1	ABS (ANTILOCK BRAKING SYSTEM)/IPC
E5	0	1	ABSORBENTS/IPC
...			

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## Searching with IPC codes Utilizing the Online Thesaurus

- Step 1: Expand a keyword of interest in the /IPC-field.
- Step 2: Expand a suitable result (E#) using the relationship code KT (keyword terms).

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## Searching with IPC codes Utilizing the Online Thesaurus

```
=> e abs/ipc
```

E#	FREQUENCY	AT	TERM
---	-----	--	----
E1	0	1	ABRASIVE(S) * SELECTION OF ABRASIVE(S) PARTICLES FOR B LASTING/IPC
E2	0	1	ABRASIVE(S) * SOAPS AND DETERGENTS CONTAINING ABRASIVE (S)/IPC
E3	0	-->	ABS/IPC
E4	0	1	ABS (ANTILOCK BRAKING SYSTEM)/IPC
E5	0	1	ABSORBENTS/IPC
...			

```
=> e e4+kt
```

E1	0	-->	ABS (Antilock Braking System)/IPC
E2	305	KT	B60T0008-176/IPC
***** END *****			

Type HELP RCODE to learn about the relationship codes available.

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## Searching with IPC codes Utilizing the Online Thesaurus

- Step 1: Expand a keyword of interest in the /IPC-field.
- Step 2: Expand a suitable result (E#) using the relationship code KT (keyword terms).
- Step 3: Expand the resulting IPC symbol with a relationship code of your choice (ED, NT, HIE, ALL...).

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## Searching with IPC codes Utilizing the Online Thesaurus

=&gt; e e2+all

```
E1      0  BT6  E/IPC
          SECTION B - PERFORMING OPERAT
E2      0  BT6  TRANSPORTING/IPC
E3      0  BT5  B6/IPC
E4      0  BT4  B60/IPC
```

VEHICLES IN GENERAL

Note

(1) In this class, the following term is used with the meaning indicated:

- "vehicle" means all vehicles except those restricted to one of the following types of vehicles: rail vehicles, waterborne vessels, aircraft, space vehicles, hand carts, cycles, animal-drawn vehicles, and sledges, which are covered by the relevant subclasses of B61 to B64.

(a) Thus the term "vehicle" includes:

#3# vehicular characteristics which are common to more than one of the above-listed types;  
#3# certain characteristics restricted to automobiles,

The relationship code ALL results in a rather lengthy display.

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road or cross-country trailers;  
 #3# The following exceptions are noted:  
 #4# subclass B60B or B60C embraces wheels and tyres, except wheels for model railway vehicles A63H0019-22, and special adaptations of wheels or tyres for aircraft B64C0025-36;  
 #4# subclass B60C embraces the connection of valves to inflatable elastic bodies in general, and in this respect it is not limited to vehicles;  
 #4# subclass B60L embraces certain electric equipment of all electrically-propelled vehicles;  
 #4# subclass B60M embraces certain power supply equipment for, but external to, any kind of electrically-propelled vehicle;  
 #4# subclass B60R embraces safety belts or body harnesses used in all types of land vehicles;  
 #4# subclass B60S relates to all kinds of vehicles, except the servicing of rail locomotives B61K0011-00, ground equipment for aircraft B64F, or cleaning apparatus peculiar to waterborne vessels B63B0057-00,

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B63B0059-00;  
 #4# subclass B60T includes brake systems of general applicability, and is not limited to vehicles. It also embraces power-brake systems and some rail-vehicle brake systems;  
 #4# subclass B60V embraces air-cushion vehicles per se and land vehicles, waterborne vessels or aircraft combined with features allowing them to alternatively operate as air-cushion vehicles or to be partially supported by an air cushion.

E5            62385    BT3    B60T/IPC  
 VEHICLE BRAKE CONTROL SYSTEMS OR PARTS THEREOF; BRAKE CONTROL SYSTEMS OR PARTS THEREOF, IN GENERAL (control of electrodynamic brake systems B60L0007-00; conjoint control of brakes and other drive units of vehicles B60W); ARRANGEMENT OF BRAKING ELEMENTS ON VEHICLES IN GENERAL; PORTABLE DEVICES FOR PREVENTING UNWANTED MOVEMENT OF VEHICLES; VEHICLE MODIFICATIONS TO FACILITATE COOLING OF BRAKES  
 Note  
 (1) In this subclass, the following expression is used

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			with the meaning indicated: - "brake control systems" including systems for vehicles or of general IMMOBILISATION Portable devices B60T0003-00 BRAKING Kind of braking and corresponding arrangements B60T0001-00 Vehicle modifications for cooling brakes B60T0005-00 Kinds of brake control initiating means; varying braking force or its distribution according to road or load conditions B60T0007-00, B60T0008-00 continuous braking B60T0010-00 transmission of control between initiating means and brakes B60T0011-00, B60T0013-00 Parts or accessories for fluid-pressure brake control: valve structure, disposition, and operation B60T0015-00 other parts or accessories B60T0017-00 -----	The relationship code ALL results in a rather lengthy display.
E6	6168	BT2	B60T0008-00/IPC Arrangements for adjusting wheel-braking force to meet	

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			limiting or varying distribution of braking force (by changing number of effective brake systems B60T0017-10) CORE VALID FROM 19680901 TO PRESENT B60T0008-17/IPC . Using electrical or electronic regulation means to control braking CORE VALID FROM 20060101 TO PRESENT ( IPC EDITION: 8 ) Note (1) When classifying in group B60T0008-17, classification is also made in appropriate places in groups B60T0008-18, B60T0008-24, B60T0008-26 or B60T0008-32 if other aspects than electronic control are of interest.	The relationship code ALL results in a rather lengthy display.
E7	10765	BT1	B60T0008-17/IPC . Using electrical or electronic regulation means to control braking CORE VALID FROM 20060101 TO PRESENT ( IPC EDITION: 8 ) Note (1) When classifying in group B60T0008-17, classification is also made in appropriate places in groups B60T0008-18, B60T0008-24, B60T0008-26 or B60T0008-32 if other aspects than electronic control are of interest.	
E8	305	-->	B60T0008-176/IPC . . Brake regulation specially adapted to prevent excessive wheel slip during vehicle deceleration, e.g. ABS (B60T0008-1755 takes precedence) ADVANCED VALID FROM 20060101 TO PRESENT ( IPC EDITION: 8 )	

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E9	2351	NT1	B60T0008-1761/IPC . . . responsive to wheel or slip, wheel acceleration or fluid pressure ADVANCED VALID FROM 20060101 TO PRESENT ( IPC EDITION: 8 )	Sub-classification is denoted with the relationship code NT (narrower terms).
E10	968	NT1	B60T0008-1763/IPC . . . responsive to the coefficient of friction between the wheels and the ground surface (B60T0008-1764 takes precedence) ADVANCED VALID FROM 20060101 TO PRESENT ( IPC EDITION: 8 )	
E11	649	NT1	B60T0008-1764/IPC . . . Regulation during travel on surface with different coefficients of friction, e.g. between left and right sides, mu-split ADVANCED VALID FROM 20060101 TO PRESENT ( IPC EDITION: 8 )	
E12	628	NT1	B60T0008-1766/IPC . . . Proportioning of brake forces according to vehicle axle loads, e.g. front to rear of vehicle ADVANCED	

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E13	207	NT1	VALID FROM 20060101 TO PRESENT ( IPC EDITION: 8 ) B60T0008-1769/IPC . . . specially adapted for vehicles having more than one driven axle, e.g. four-wheel drive vehicles ADVANCED VALID FROM 20060101 TO PRESENT ( IPC EDITION: 8 ) ***** END *****
-----	-----	-----	--

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## Searching with IPC codes Utilizing the Online Thesaurus

- Step 1: Expand a keyword of interest in the /IPC-field.
- Step 2: Expand a suitable result (E#) using the relationship code KT (keyword terms).
- Step 3: Expand the resulting IPC symbol with a relationship code of your choice (ED, NT, HIE, ALL...).
- Step 4: SEARCH using E# and relationship codes.

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## Searching with IPC codes Utilizing the Online Thesaurus

```

VALID FROM 20060101 TO PRESENT ( IPC EDITION: 8 )
E13      207  NT1  B60T0008-1769/IPC
          . . . specially adapted for vehicles having more than
          one driven axle, e.g. four-wheel drive vehicles
          ADVANCED
          VALID FROM 20060101 TO PRESENT ( IPC EDITION: 8 )
***** END *****

=> s e8+nt,core

L1      10765 B60T0008-176+NT,CORE/IPC (7 TERMS)

=> d ti ...

L1 ANSWER 1 OF 10765 WPINDEX COPYRIGHT 2009 THOMSON REUTERS on STN
TI Braking force control apparatus for hybrid vehicle, has control unit that...

L1 ANSWER 10 OF 10765 WPINDEX COPYRIGHT 2009 THOMSON REUTERS on STN
TI Vehicle control apparatus e.g. anti-lock brake system (ABS) for...

```

Relationship codes can be used for searching as well.

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## Searching with IPC codes Utilizing the Online Thesaurus

- Step 1: Expand a keyword of interest in the /IPC-field.
- Step 2: Expand a suitable result (E#) using the relationship code KT (keyword terms).
- Step 3: Expand the resulting IPC symbol with a relationship code of your choice (ED, NT, HIE, ALL...).
- Step 4: SEARCH using E# and relationship codes.

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## Searching with IPC codes Analyzing answer sets

### **Search Question:**

What classification symbols are used to describe laser welding techniques?

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## Searching with IPC codes Analyzing answer sets

Step 1. Produce a highly significant answer set

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## Produce a highly significant answer set

```
=> s (laser and welding)/ti
      193917 LASER/TI
      107852 WELDING/TI
L1      6070 (LASER AND WELDING)/TI
```

The enhanced titles in WPI offer an excellent way to produce relevant answer sets instantaneously.

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## Searching with IPC codes

### Analyzing answer sets

- Step 1. Produce a highly significant answer set  
 Step 2. Analyze the answer set for the classification used

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## Analyze the answer set for the classification used

```
=> ana l1 ipc
L2          ANALYZE L1 1- IPC :    3643 TERMS

=> d
L2          ANALYZE L1 1- IPC :    3643 TERMS
```

TERM #	# OCC	# DOC	% DOC	IPC
1	6667	3540	58.32%	B23K0026-00
2	2478	2319	38.20	B23K0026-20
3	1512	721	11.88	B23K0026-06
4	1284	546	9.00	B23K0026-14
5	1206	566	9.32	B23K0026-08

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## Searching with IPC codes

### Analyzing answer sets

- Step 1. Produce a highly significant answer set
- Step 2. Analyze the answer set for the classification used
- Step 3. Review the top result(s) in the thesaurus or on the website

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## Review the top results in the thesaurus

=&gt; e B23K0026-00+NT/IPC

```

E1      25277  -->  B23K0026-00/IPC
           Working by laser beam, e.g. welding, cutting, boring
           (lasers H01S0003-00)
           CORE ←
           VALID FROM 19740701 TO PRESENT (IPC EDITION: 2-8)
E2      3712  NT1  B23K0026-02/IPC
           . Positioning or observing the workpiece, e.g. with
           respect to the point of impact; Aligning, aiming or
           focusing the laser beam
           CORE
           VALID FROM 19800101 TO PRESENT (IPC EDITION: 3-8)
E3      1507  NT2  B23K0026-03/IPC
           . . Observing the workpiece
           ADVANCED
           VALID FROM 20000101 TO PRESENT (IPC EDITION: 7-8)
E4      2795  NT2  B23K0026-04/IPC
  
```

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## Review the top results in the thesaurus

E14	4696	NT1	<p>VALID FROM 19800101 TO PRESENT (IPC EDITION: 3-8)</p> <p>B23K0026-20/IPC ←</p> <p>. Bonding, e.g. <b>welding</b> (soldering by means of radiant energy B23K0001-005; joining of preformed plastic parts by heating using laser beam B29C0065-16)</p> <p>ADVANCED ←</p>
E15	201	NT2	<p>VALID FROM 20000101 TO PRESENT (IPC EDITION: 7-8)</p> <p>B23K0026-22/IPC</p> <p>. . Spot welding</p> <p>ADVANCED</p>
E16	687	NT2	<p>VALID FROM 20000101 TO PRESENT (IPC EDITION: 7-8)</p> <p>B23K0026-24/IPC</p> <p>. . Seam welding</p> <p>ADVANCED</p>
E17	415	NT3	<p>VALID FROM 20000101 TO PRESENT (IPC EDITION: 7-8)</p> <p>B23K0026-26/IPC</p> <p>. . . of rectilinear seams</p> <p>ADVANCED</p> <p>VALID FROM 20000101 TO PRESENT (IPC EDITION: 7-8)</p>

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## Review the top results in the thesaurus

E18	339	NT3	<p>B23K0026-28/IPC</p> <p>. . . of curved planar seams</p> <p>ADVANCED</p> <p>VALID FROM 20000101 TO PRESENT (IPC EDITION: 7-8)</p>
E19	40	NT3	<p>B23K0026-30/IPC</p> <p>. . . of three-dimensional seams</p> <p>ADVANCED</p> <p>VALID FROM 20000101 TO PRESENT (IPC EDITION: 7-8)</p>
E20	1211	NT2	<p>B23K0026-32/IPC</p> <p>. . taking account of the properties of the material</p> <p>ADVANCED</p> <p>VALID FROM 20000101 TO PRESENT (IPC EDITION: 7-8)</p>
E21	1026	NT1	<p>B23K0026-34/IPC ←</p> <p>. <b>Welding for purposes other than joining</b>, e.g. build-up welding</p> <p>ADVANCED</p> <p>VALID FROM 20000101 TO PRESENT (IPC EDITION: 7-8)</p>
E22	1224	NT1	<p>B23K0026-36/IPC</p> <p>. Removing material</p>



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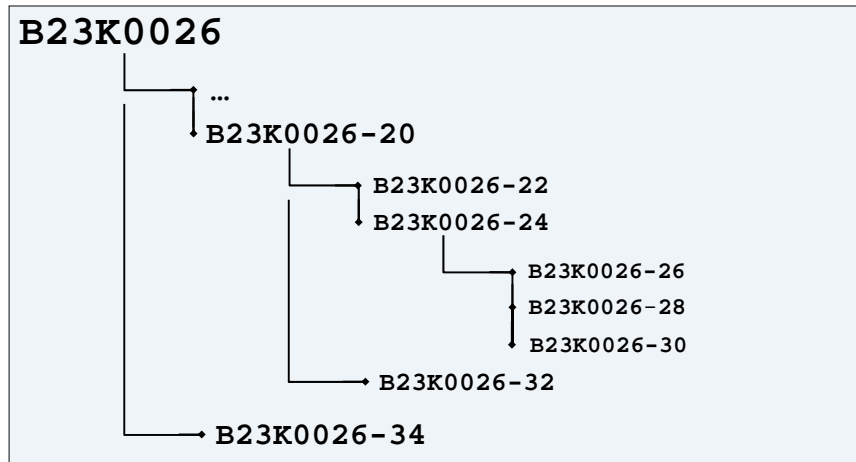
## Searching with IPC codes

### Analyzing answer sets

- Step 1. Produce a highly significant answer set
- Step 2. Analyze the answer set for the classification used
- Step 3. Review the top result(s) in the thesaurus or on the website
- Step 4. Use relationship codes for perfect retrieval

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## Use relationship codes for perfect retrieval



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### Use relationship codes for perfect retrieval

```

graph TD
    BT1 --> B23K0026_20[B23K0026-20]
    BT1 --> B23K0026_34[B23K0026-34]
    B23K0026_20 --> NT1_1[NT1]
    B23K0026_20 --> NT1_2[NT1]
    NT1_2 --> NT2_1[NT2]
    NT1_2 --> NT2_2[NT2]
    NT1_2 --> NT2_3[NT2]
    NT1_3[NT1]
  
```

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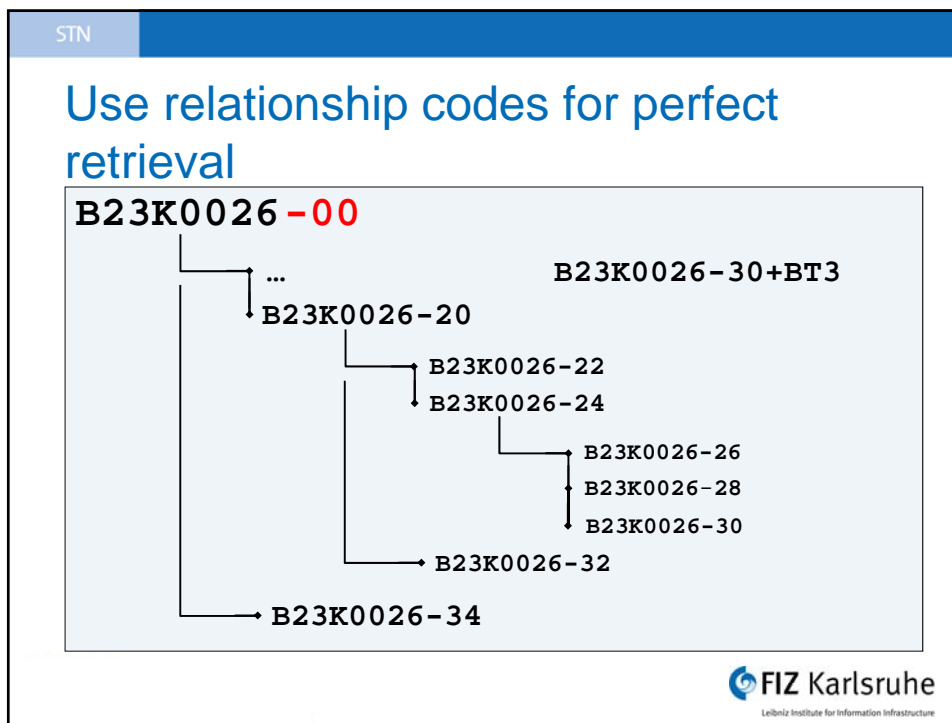
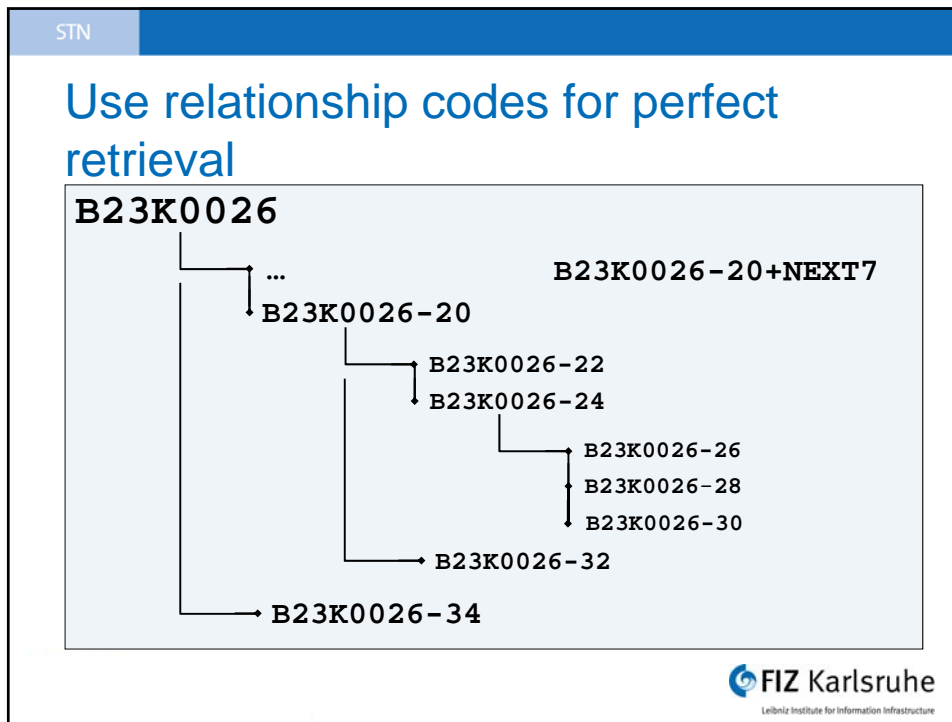
STN

### Use relationship codes for perfect retrieval

```

graph TD
    B23K0026 --> B23K0026_20[B23K0026-20]
    B23K0026 --> B23K0026_34[B23K0026-34]
    B23K0026_20 --> B23K0026_22[B23K0026-22]
    B23K0026_20 --> B23K0026_24[B23K0026-24]
    B23K0026_24 --> B23K0026_26[B23K0026-26]
    B23K0026_24 --> B23K0026_28[B23K0026-28]
    B23K0026_24 --> B23K0026_30[B23K0026-30]
    B23K0026_20 --> B23K0026_32[B23K0026-32]
  
```

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## Use relationship codes for perfect retrieval

**B23K0026-00**

...  
B23K0026-20  
B23K0026-22  
B23K0026-24  
B23K0026-26  
B23K0026-28  
B23K0026-30  
B23K0026-32  
B23K0026-34  
B23K0026-30+CORE

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## Use relationship codes for perfect retrieval

=> **s B23K0026-30/IPC**  
L3 40 B23K0026-30/IPC

=> **s B23K0026-20+NEXT7,CORE/IPC**  
L4 25430 B23K0026-20+NEXT7,CORE/IPC (9 TERMS)

Very restrictive:

- + few, very concise hits
- misses relevant documents
- > OR

Very broad:

- + comprising, still specific
- + lower risk of dropping relevant documents
- large number of hits
- relies on classification alone
- > combine with search terms

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## Combine classification and keywords for better results

```
=> s laser# or B23K0026/IPC
L5      329267 LASER# OR B23K0026/IPC
```

Covers the aspect 'laser'  
+ very comprising  
+ classification as catchall  
- retrieves 'laser' in other contexts, too

```
=> s laser# and B23K/IPC
L6      31429 LASER# AND B23K/IPC
```

Covers the aspect 'laser' in the context of machining metals  
+ no out-of-context lasers  
- misses documents without the term 'laser'

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## Combine classification and keywords for better results

```
=> s (laser# and B23K/IPC) or B23K0026-20+NEXT7,CORE/IPC
L7      35112 (LASER# AND B23K/IPC) OR B23K0026-
        20+NEXT7,CORE/IPC
```

'laser' still too generic

```
=> s (laser# and (weld? or bond?) and B23K/IPC) or
      B23K0026-20+NEXT7,CORE/IPC
L8      27757 (LASER# AND (WELD? OR BOND?) AND B23K/IPC)
        OR B23K0026-20+NEXT7,CORE/IPC
```

keywords not independent of classification

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## Combine classification and keywords for better results

And the winner is...

```
=> s (laser# (2a) (weld? or bond?)) or
    (laser# and (weld? or bond?) and B23K/IPC) or
    B23K0026-20+NEXT7,CORE/IPC
L9      32063 (LASER# (2A) (WELD? OR BOND?)) OR
        (LASER# AND (WELD? OR BOND?) AND B23K/IPC,ECLA) OR
        B23K0026-20+NEXT7,CORE/IPC
```

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## Searching with IPC codes Analyzing answer sets


- Step 1. Produce a highly significant answer set
- Step 2. Analyze the answer set for the classification used
- Step 3. Review the top result(s) in the thesaurus or on the website
- Step 4. Use relationship codes for perfect retrieval


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Patent Classification on

# STN<sup>®</sup>

Jeremias Gromotka

 CAS is a division of the American Chemical Society

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