



DESIGN METHODOLOGY

Machine elements

Petr Žabka
Šimon Kovář



Standard components can significantly reduce costs by reducing research, development and producing times



Time is money

(Benjamin Franklin 1849)

Standard Components

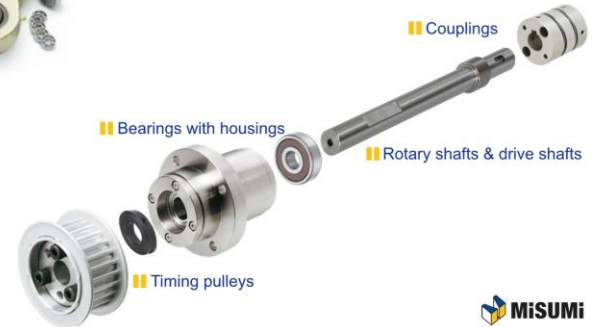


ISO standards

EN

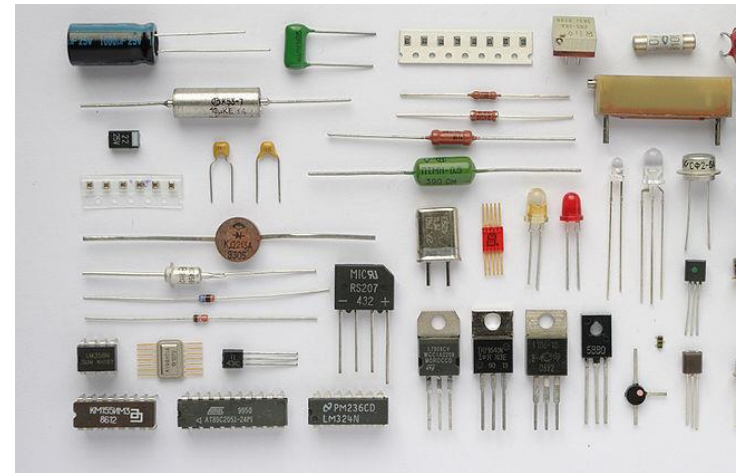


ČSN



Common Components

Wide spread parts but out of standards



Complex Units

Assemblies of function units



Semi-produced Parts

Parts that needs to be finished



Special Parts

Special for some application field



Modular Systems

"LEGO" systems



Items for Other Purpose

Originally designed for another applications



Advantages and Disadvantages

Advantages

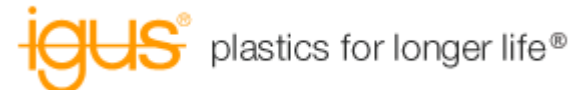
- Lower costs
- Fast delivery
- Replaceability (no need for spare parts)
- Better quality (know-how of producers)
- Wider technological possibilities
- Available aid and consulting services
- Provided warranty by producers

Disadvantages

- Limited number of designs



Examples of 3D models to copy standardized parts



CAD part libraries

Traceparts

<http://www.tracepartsonline.net>



CAD community

<http://b2b.partcommunity.com>



3Dpartlib

<http://www.3dpartlib.com/cs/>




Parts can be obtained directly from distributors.

Example:

<http://uk.misumi-ec.com/vona2/detail/110300120950>

The window for defining 2D or 3D formats
We recommend copying STEP or IGES format

2D/3D CAD Download 

File Format

Version

2D CAD data with fixed dim.

> 2d_CPDZ.zip
> 2d_CPDW.zip

Only specific sizes are available
Depending on the specifications of the product, only simplified data may be available.



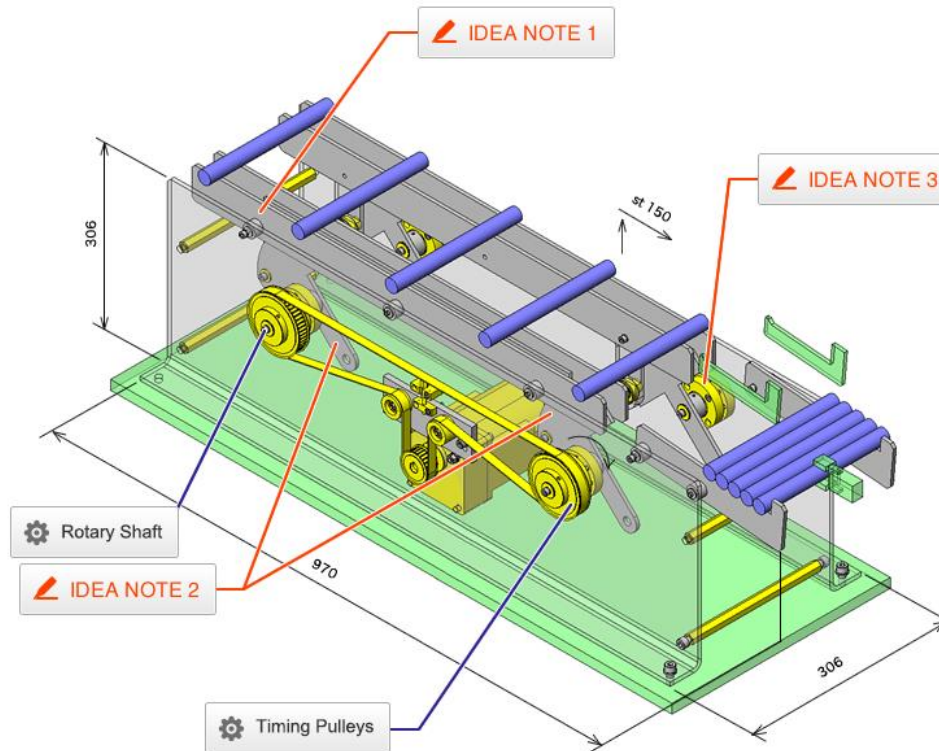
It is necessary to register on:

https://www.misumi-ec.com/sg/useradmin/US006NewAccountPaymentSelectCmd.do?commandCode=NO_AUTH_REGIST_WOS_USER

Misumi – „IDEA NOTE“

examples of applications of standardized parts

<https://us.misumi-ec.com/us/ideanote/>




IGUS – plastics for longer life

<http://www.igus-cad.com>

KCLM-10-F - igubal® form C, metric sizes, size range K, left-hand thread

▼ CAD preview / export



3D version | 2D version | 3D PDF data sheet

File export
Format:

Click2CAD - Direct insert
CAD system:

Add to "My Products" | recommend this Product

▼ igubal@
Part No. KCLM-10-F



List of suppliers of standardized parts

<http://www.essentracomponents.cz>



<http://www.haberkorn.cz>

HABERKORN

<http://www.halder.com>

 **HALDER**

<http://www.item24us.com>

item

<http://www.misumi-europe.com>



<https://www.hennlich.cz>



List of suppliers of drives and gears

<https://www.festo.com>

FESTO

<https://www.br-automation.com>



<http://www.chiaravalli.com>



<https://www.faulhaber.com>



<https://www.smc.eu>



<http://www.teatechnik.cz/>



Standard components

<http://www.ina.de/content.ina.de>

<http://www.skf.com>

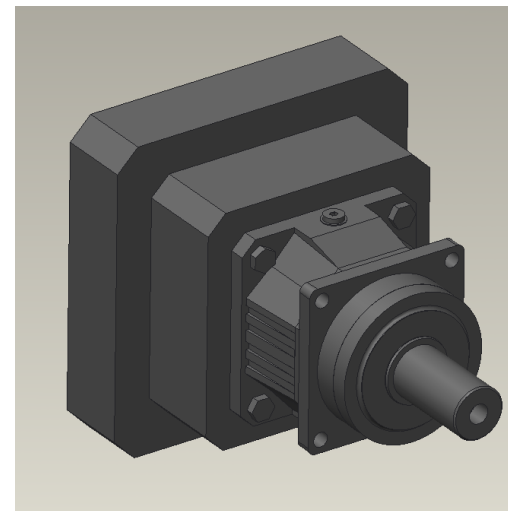
<http://fullerfasteners.com/>

<http://www.metalcom.cz>



A practical example

- Sign up to traceparts
- Find the part with the marking P521 SGD 0040 MEL
- Download the CAD model as STEP format.
- Open the model in CREO as a part/assy.
- Save the model as part/assy.



Questions:

- List examples of standard parts.
- List common Components, Complex Units, semi-finish part, Special Parts and modular systém.
- List the benefits of using standard and norm components.



Topic of the next lecture:

„Drives“

Thank You



Used literature and sources of information: