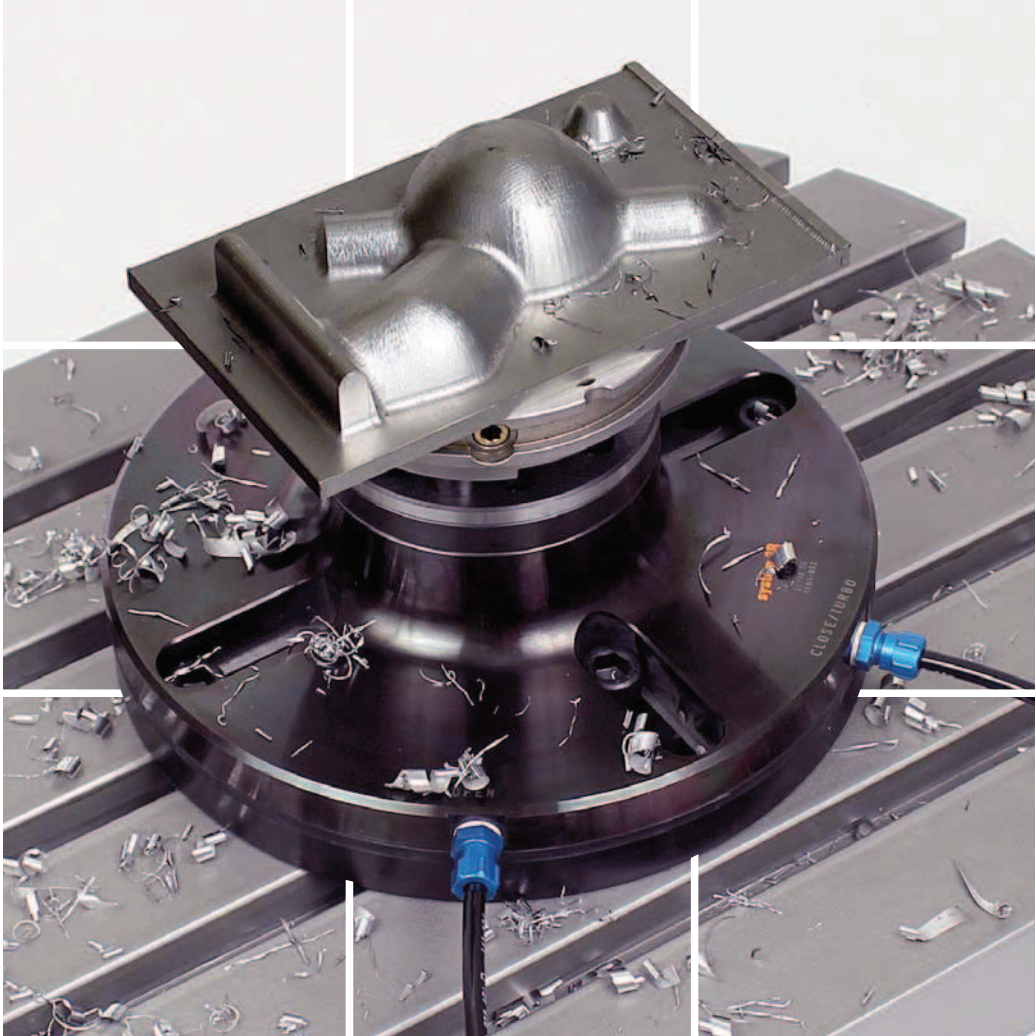
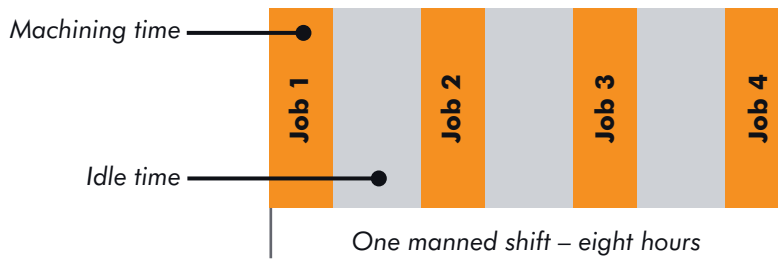


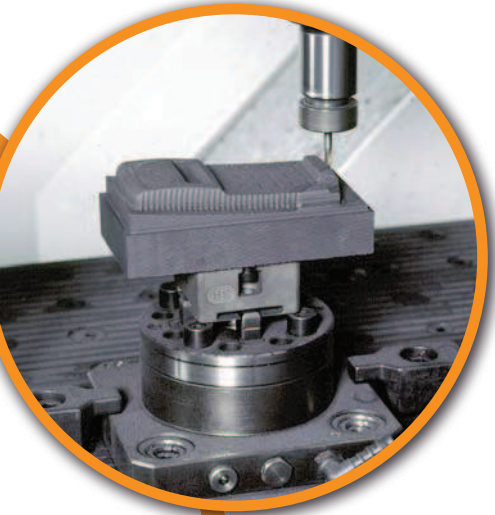
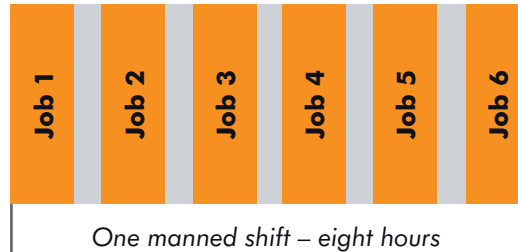
## Reference systems for precision machining



## Conventional setting-up



## Pallet system



### Higher productivity, calculation example:

|                                 | Conventional setting-up | Pallet system |
|---------------------------------|-------------------------|---------------|
| Working time per day            | 8                       | 8             |
| Setting-up time per day (hours) | -4                      | -0.5          |
| Spindle time per day            | =4                      | =7.5          |
| Working days per week           | x5                      | x5            |
| Spindle time per week           | = 20                    | =37.5         |

### Faster payback, calculation example:

|                                | Conventional setting-up | Pallet system |
|--------------------------------|-------------------------|---------------|
| Hourly invoicing (€)           | 50                      | 50            |
| Spindle time / week (hours)    | x20                     | x37.5         |
| Revenue / week (€)             | =1 000                  | =1 875        |
| Capital cost of machine (€)    | 150 000                 | 150 000       |
| Capital cost pallet system (€) | 0                       | +10 000       |
| Total capital outlay (€)       | =150 000                | =160 000      |
| Paybacktime (weeks)            | 150                     | 85            |



### A reference system minimises setup times

Every minute that can be converted from internal to external setting time increases the spindle time of the machine and with it the productivity of the business.

### Big earnings are within your reach

The machine generates revenue when its spindle is turning – and only then.

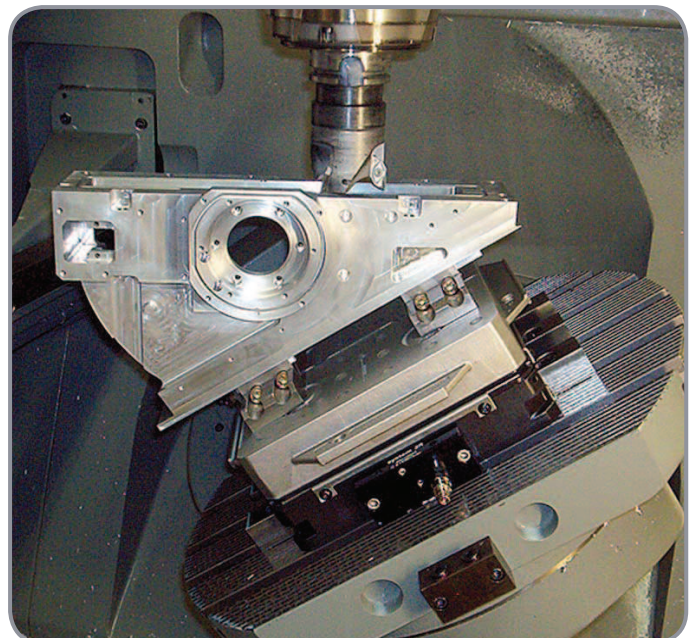
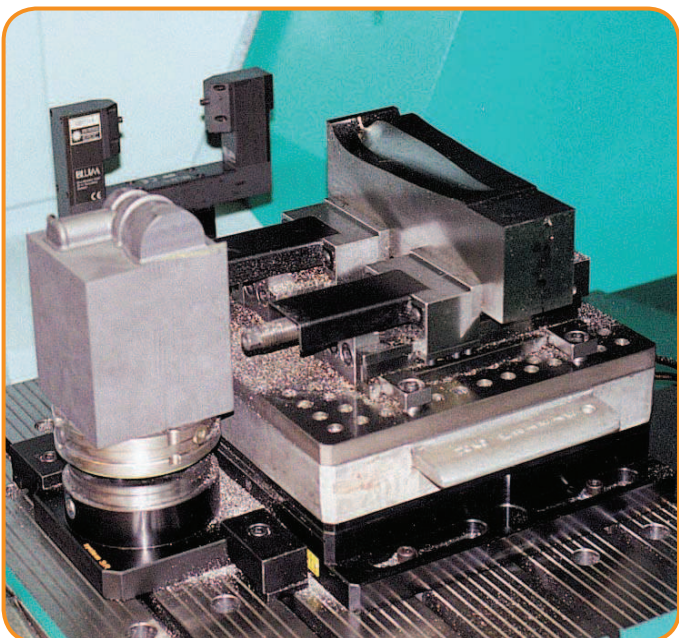
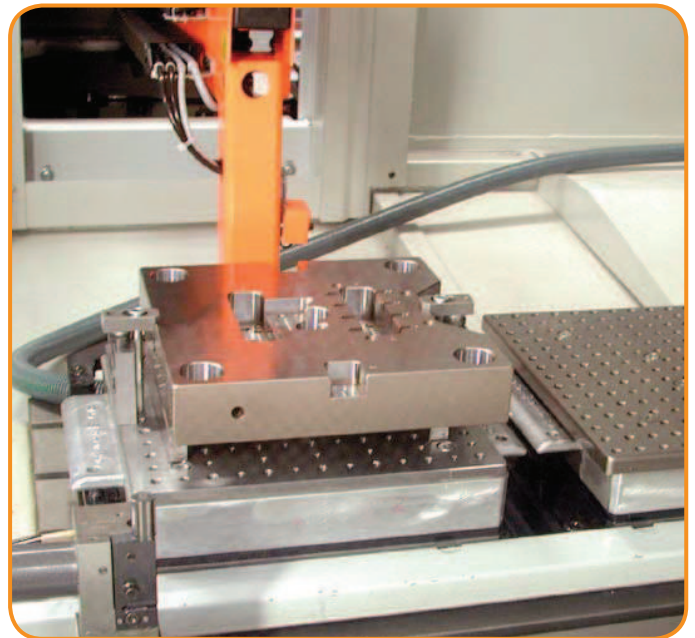
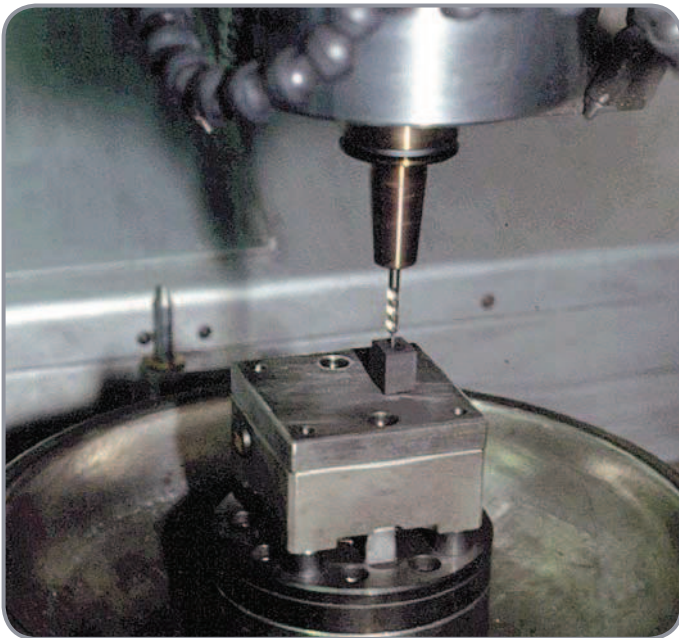
**Work smarter, not harder.**

## Introduction – Rough guidance to tooling

| Intervall of pallet size (mm) | Reference system / max workpiece weight kg |             |        |        |         |
|-------------------------------|--|-------------|--------|--------|---------|
|                               | Macro                                      | MacroMagnum | Matrix | GPS240 | Dynafix |
| ∅52-54                        | 5 kg                                       | 5 kg        |        |        |         |
| ∅54-∅75                       | 10 kg                                      | 10 kg       |        |        |         |
| ∅110-116                      | 50 kg                                      | 50 kg       | 50 kg  |        |         |
| ∅142-185                      | 50 kg                                      | 100 kg      | 100 kg |        |         |
| ∅220-260                      |  | 100 kg      | 200 kg | 100 kg |         |
| ∅280-400                      |  |             |        |        | 250 kg  |



Above list is only a rough guidance which may deviate between article number of pallets as well as individual application. Please check with local 3R representative for more detailed confirmation.



## Delphin & Delphin BIG

### Clamping of larger dimensions too, with Delphin

The modular design with the Delphin zero point clamping system offers you the greatest possible flexibility.

You can arrange the machine equipment as a base-plate or as a built-up solution, precisely in accordance with your requirements.

Pallets or workpieces can now be positioned and clamped with great accuracy on the Delphin clamping system.



### Advantages of the Delphin clamping system

- Modular design
- Large product portfolio
- Uniform clamping spigots
- Spring centring for pinpoint accuracy

### Facts

Repetition accuracy: < 0.005 mm  
Clamping force: 13'000N pneumatic  
15'000N hydraulic

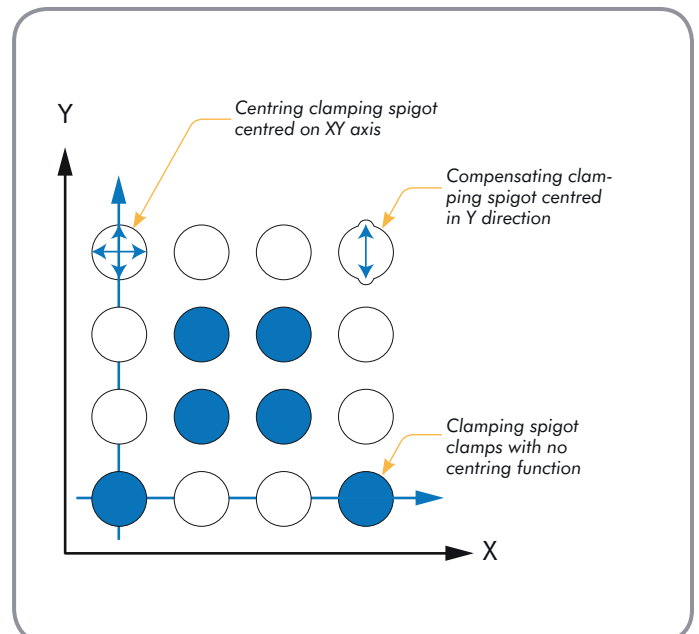


### Function of the Delphin clamping system

One special feature in relation to modular equipping of the machine tables is the option for arrangement and number of chucks. Regardless of the requirements of the application, you determine the quantity and the particular centre distance with which you wish to equip the machine table.

Our recommendation: use at least 4 chucks per workpiece or work with pallets.

The conical clamping spigots are mounted directly in the device or workpiece. Centring of the conical face of the centring and compensating clamping spigots free of play achieves maximum accuracy.



## Delphin & Delphin BIG

### Chucks for manual equipping:

#### Delphin PSP

Pneumatic, clamping force 13'000N

#### Delphin HSP

Hydraulic, clamping force 15'000N

Lift-off function

### Chucks for automation:

#### Delphin PHP

Pneumatic, clamping force 13'000N

Self-cleaning and presence control

#### Delphin HHP / Delphin HCP

Hydraulic, clamping force 15'000N

Self-cleaning and presence control

Lift-off function



Delphin BIG



### Delphin BIG:

The newest member of the Delphin family was developed specially for large workpieces.

This opens up entirely new approaches for the production of large workpieces or the manufacture of large moulds.

Because of its optimised shape, the clamping system is highly tolerant during loading of the pallets, by a crane for instance.

### Delphin BIG Facts

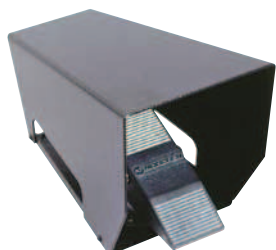
- Clamping force 50'000N
- Repetition accuracy  $\pm 0.005\text{mm}$
- Lift-off function
- Cleaning
- Presence control
- Suitable for automation



## Accessories

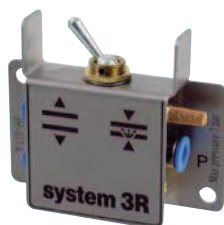
### Control unit 3R-611.2

Foot operation of pneumatic chucks.



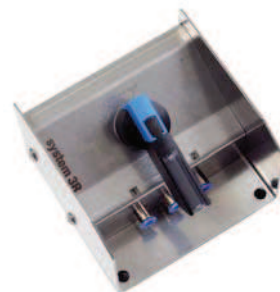
### Control unit 3R-611.4

Unit for operation of pneumatic chucks. Two functions – open/closed.



### Control unit 3R-611.46

Unit for hand operation of pneumatic chucks. Three functions – open/neutral/closed.



### Allen keys

#### 3R-333-03

- Supplied in sets of 10 pcs.
- 3 mm



#### 3R-333-05

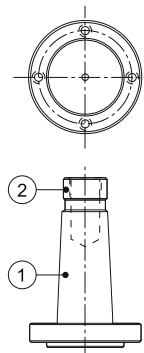
- Supplied in sets of 10 pcs.
- 5 mm



### Lathe taper 3R-TXXXX

Taper attachment for mounting chucks in taper spindles.

*Note: Manufactured on request. State machine type, taper (1), drawbar thread (2) and which 3R chuck is to be mounted. Use the order form at the end of the catalogue.*



### Locking ring key 3R-605-GE

To lift the locking ring of the drawbars.

- Supplied in sets of two



### Labels 3R-LL200P

Supplied with marker pen.

- Size 12x25 mm
- Supplied in sets of 200

