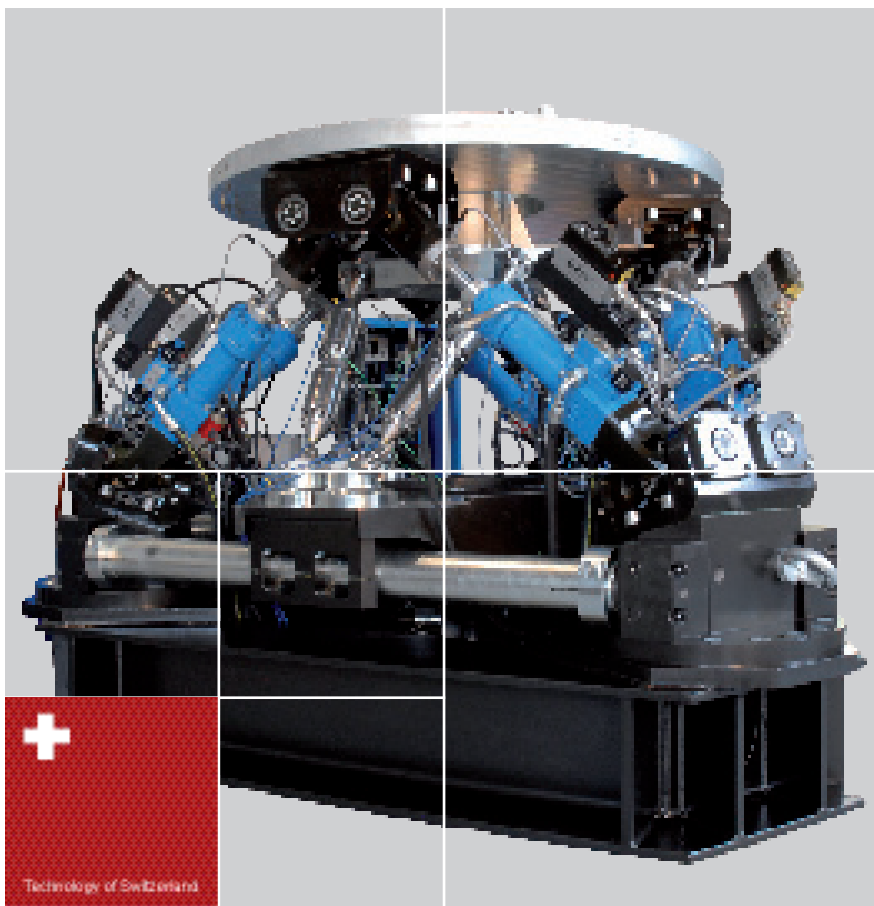


# Hexamove Testing System

PRJ00099



- Forces in 6 freedom rates measuring and controlling
- Height forces and torques
- High precision
- Programmable to any reference point

# Introduction

How precisely and successfully forces can be directed into components can be seen from the fact that a well-known manufacturer of multiple-axes force absorbers for the car industry calibrates its products on a Hexamove Testing System.

The Hexapod itself is fitted with force absorbers on the axes, which have a range of 50 kN. The forces are converted to the desired point of reference in the test item using predefined coordinate systems. The controlling automatically calculates the necessary axis forces and also creates any necessary torques on the platform to direct cross-forces on the test item. The entire system is made with a high level of precision. The bearing have no clearance and are optimised to minimum friction to falsify the measurement results as little as possible.

A special features is the additional reference force measurement system under the fixed tension platform. It is also designed in the form of a hexapod. To prevent the measurement signals from being falsified by disturbing torques, which can be set in practice through deformations in the structure, the braces are fitted with so-called point spring joints. These joints do not absorb small angular changes without larger bending moments occurring. The system has turned out to be remarkably precise and reliable in practice. The concept can be varied in size and in the force range within a very broad range.

## Technical data

### Geometrical basic data (drive hexapod)

#### Basic parameter drive system

Type route measurement system:	SSI (synchronous serial interface)
Resolution route measurement system:	0.001 mm
Cycle time control:	0.5 ms
Cylinder hoist:	180 mm
Cylinder installation length (retracted):	764 mm
Diameter geometrically solid platform:	1650 mm
Diameter geometrically upper platform:	1012 mm
Lower work area limit (distance joint levels)	483.7 mm
Upper work area limit (distance joint levels)	735.8 mm
Joint type	Cardan joints HM. 1024.x000
Joint distance	160 mm

#### Forces

X-direction	+/- 50 kN	} achieved in combination
Y-direction	+/- 50 kN	
Z-direction	+/- 50 kN	
Torques	+/- 10 kNm	

# Technical data

## Work area

The following details show the maximum deflections with a horizontal platform from the central line or the maximum rotation angles on the vertical central axis. It must be noted that the values cannot be reached in combination.

Max. translation Z-axis	252.1 mm
Max. translation X-axis	+/- 129.5 mm (z=608.7)
Max. translation Y-axis positive	+ 150.0 mm (z=601.7)
Max. translation Y-axis negative	- 150.0 (z=606.7)
Max. rotation around Z-axis	+/- 14.5 degrees (z=603.7)
Max. rotation around Y-axis	+/- 15.5 degrees (z=599.7)
Max. rotation around X-axis positive	+ 17.0 degrees (z=630.2)
Max. rotation around X-axis negative	- 19.0 degrees (z=569.2)

## Work area section images

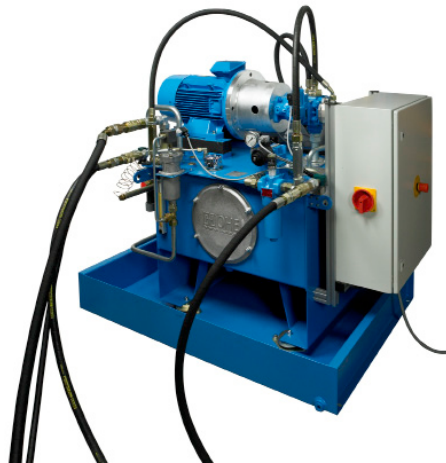
The diagrams show a section through the three-dimensional work area body. The area within the red line can be moved into by the platform. Please note that every diagram is valid for a certain length (angle RX, RY, RZ defined) of the platform.

Level	TX	TY	TZ	RZ	RY	RX	TCP	Reference-Frame	Illustration
XZ		0		0	0	0			1a
XZ	0			0	0	0			1b
XY			500					{FB}	2a
XY			550					{FB}	2b
XY			580					{FB}	2c
XY			600					{FB}	2d
XY			620					{FB}	2e
XY			640					{FB}	2f
XY			660					{FB}	2g
XY			680					{FB}	2h
XY			620			10		{FB}	3a
XY			620			-10		{FB}	3a
XY			620		10			{FB}	4a
XY			620		-10			{FB}	4b

# Technical data

## Accessories

### Unit



### Control cabinet

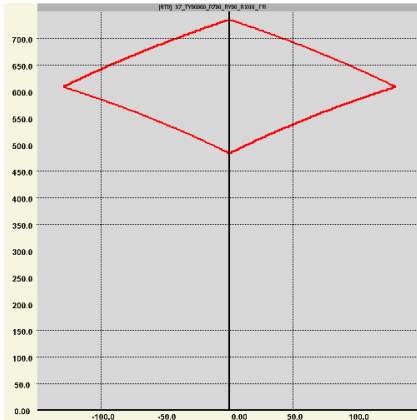


### Teach pad

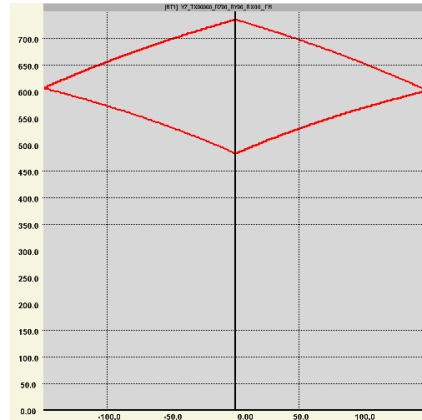


# Technical data

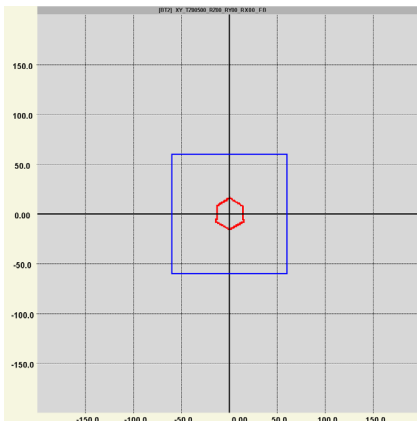
**Vertical section through central line and X-Achse: 1a**



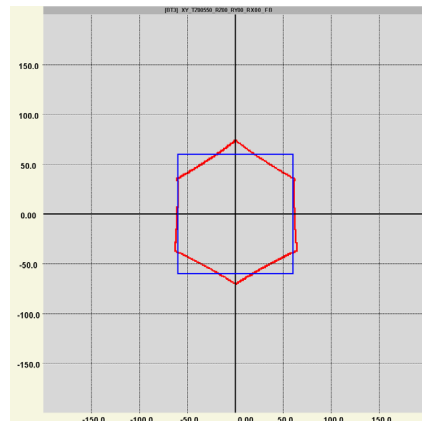
**Vertical section through central line and Y-Achse: 1b**



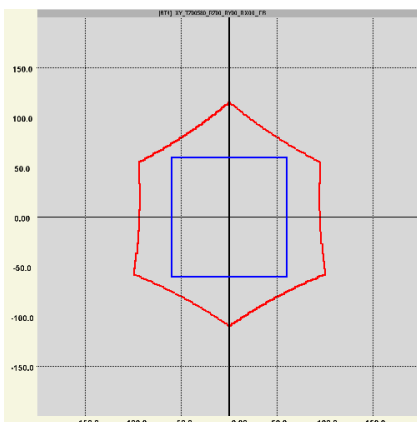
**Horizontal section with horizontal platform (TZ = 500 mm): 2a**



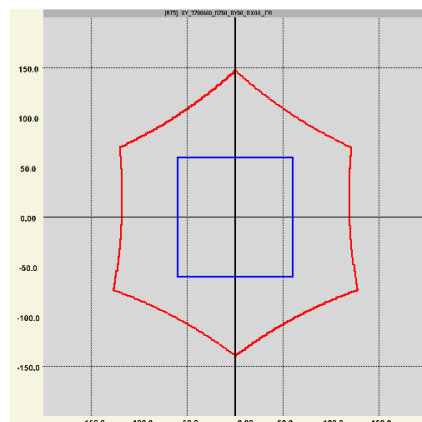
**Horizontal section with horizontal platform (TZ = 550 mm): 2b**



**Horizontal section with horizontal platform (TZ = 580 mm): 2c**

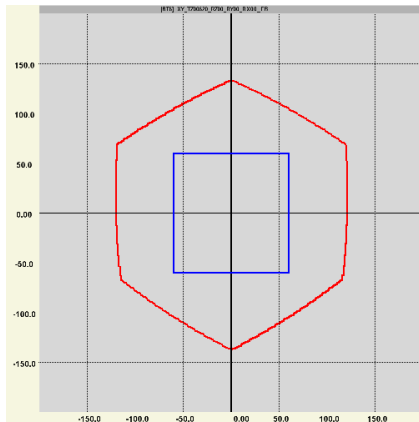


**Horizontal section with horizontal platform (TZ = 600 mm): 2d**

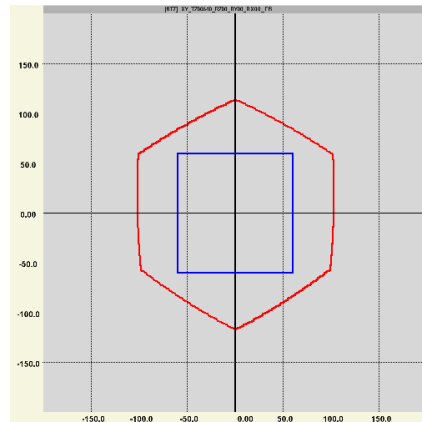


# Technical data

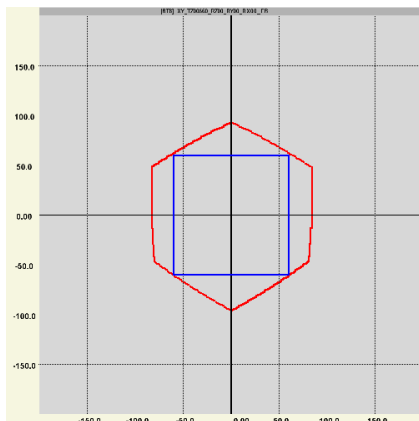
Horizontal section with horizontal platform  
(TZ = 620 mm): 2e



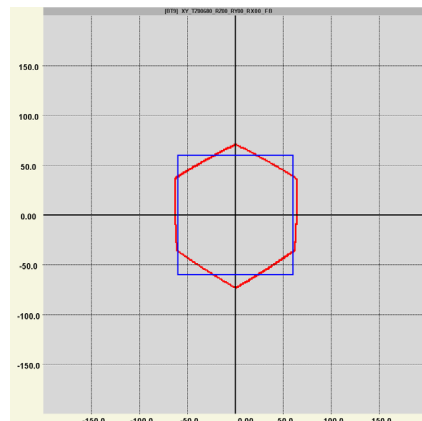
Horizontal section with horizontal platform  
(TZ = 640 mm): 2f



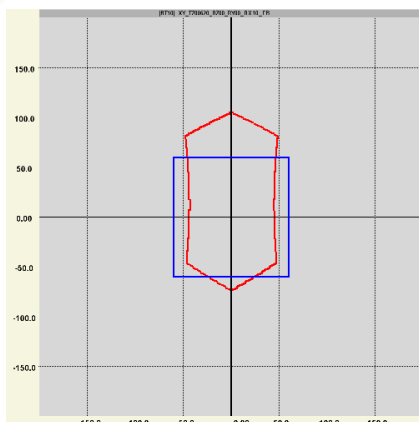
Horizontal section with horizontal platform  
(TZ = 660 mm): 2g



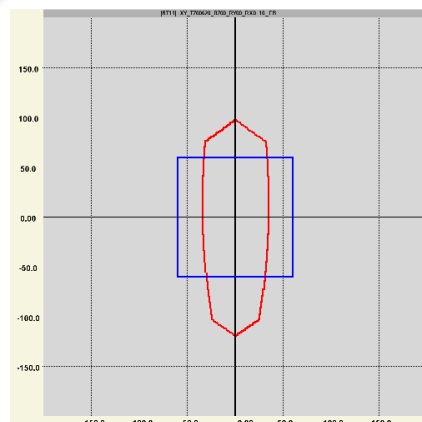
Horizontal section with horizontal platform  
(TZ = 680 mm): 2h



Section at TZ = 620, RX = 10 degrees: 3a

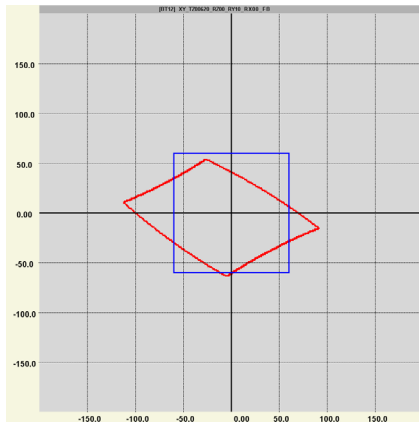


Section at TZ = 620 mm, RX = -10 degrees: 3b

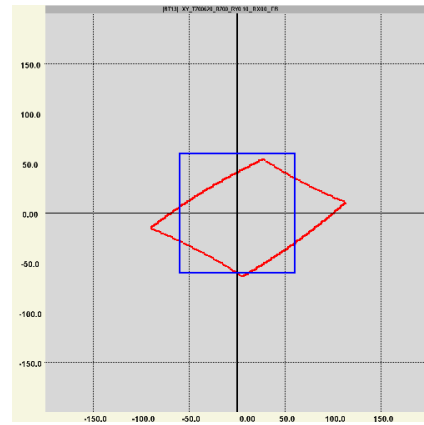


# Technical data

Section at TZ = 620 mm, RY = 10 degrees: 4a



Section at TZ = 620 mm, RY = -10 degrees: 4b



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