TEST STAND
DYNOFIT DRIVE

PURPOSE AND APPLICATION

The **DYNOFIT DRIVE** series test stands are designed for the basic measurement of mechanical power on the output shaft of the tested machine within the power range from 15 kW to 220 kW. The stands are designed so that it is possible to choose from the basic design with manual test run control to the design with a fully automated test cycle with control and evaluation in a computer. Active electric brakes - asynchronous dynamometers - are used for loading.

The **DYNOFIT DRIVE** test stands are one of the fundamental parts for building up a complex laboratory.

STRUCTURAL LAYOUT

The test stand consists of five principal parts:

- ★ dynamometer
- ★ worktable with lifting table
- ★ auxiliary switchboard and a set of interconnecting cables
- ★ power supply switchboard for dynamometer
- ★ control unit with measurement

There are the following optional accessories to the test stand available:

- ★ power supply units for tested machines
- ★ control panel or measuring unit
- ★ application software
  - DYNOFIT SW
  - DYNOFIT PROFI SW
- ★ brackets and flanges
- ★ couplings

ADVANTAGES

- ★ test cost reduction by electric power recuperation
- ★ manual or automated measurement including report generation
- ★ easy installation, maintenance and compactness of the equipment

The test stand can be optimized by a suitable combination of the dynamometer and the worktable according to the customer's needs.

VUES Brno s.r.o. Mostecká 992/26, 614 00 BRNO, Czech republic tel.: +420 545 551 111 fax: +420 545 551 222 e-mail: mail@vues.cz http://www.vues.cz

BASIC COMPONENTS

DYNAMOMETER

The ASD series asynchronous dynamometers are designed to measure the mechanical power on the tested machine shaft and for making out controlled braking and driving torque.

TYPE DESIGNATION	BASIC PARAMETERS OF DYNAMOMETERS					
	Torque brake	Power brake	Speed	Max. speed	Max. torque	Weight
	[Nm]	[kW]	[min^{-1}]	[min^{-1}]	[Nm]	[kg]
ASD ◘[1]030-2/0036	36	30	8 000 / 10 000	12 000	50	520
ASD ◘[1]050-4/0312	312	50	2 400 / 3 000	6 000	450	450
ASD ◘[1]085-4/0541	541	85	2 600 / 3 600	6 000	800	733
ASD ◘[1]100-4/0637	637	100	1 500 / 3 600	6 000	1 000	1 220
ASD ◘[1]153-4/0974	974	153	1 500 / 3 000	5 000	1 300	1 225
ASD ◘[1]200-4/1275	1 275	200	1 500 / 3 600	6 000	1 800	1 820
ASD ◘[1]220-4/0934	934	220	2 250 / 4 500	6 000	1 400	1 180

Dynamometer design - ◘[1]

P - torque measurement on the principle of measurement force of the magnetic field reaction of the inner tilting machine – measuring accuracy 0.2 %

S - torque measurement using a torque sensor located directly on the dynamometer shaft – measuring accuracy 0.05 %

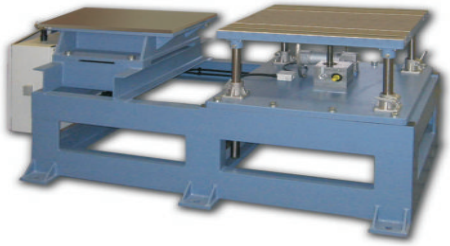
For detailed information see the separate leaflet:
ASD Series Asynchronous Dynamometers up to 1000 kW

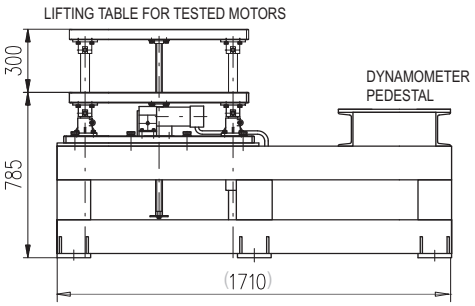
WORKTABLE WITH LIFTING TABLE

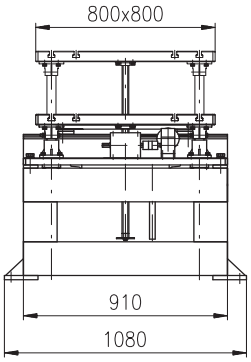
The worktable is designed for the need of the testing laboratories of electric machines, but it can be easily modified also for clamping other tested devices. It enables quick and precise setup of the measured machine in the dynamometer axis.

Its advantages include:

- ★ easy installation of tested machines
- ★ load capacity of the table up to 1000 kg
- ★ electrical control with micro-feed







For detailed information see the separate leaflet:
Worktable with Lifting Table

AUXILIARY SWITCHBOARD AND A SET OF INTERCONNECTING CABLES

Auxiliary switchboard contains measuring devices, auxiliary modules and circuits for torque, speed and dynamometer temperature measurement. Measured values are sent via serial line RS485 to the power supply switchboard for dynamometer and from the power supply switchboard further to the control unit with measurement, or a control PC respectively.
Set of cables is intended for connecting of particular parts of the test stand.

VUES Brno s.r.o. Mostecká 992/26, 614 00 BRNO, Czech republic tel.: +420 545 551 111 fax: +420 545 551 222 e-mail: mail@vues.cz http://www.vues.cz

POWER SUPPLY SWITCHBOARD FOR DYNAMOMETER

The power supply switchboard is designed for controlled supply of the dynamometer.
By the type of tested equipment, the power supply switchboard is divided to:
STANDARD - the power supply switchboard only supplies the dynamometer in motor mode
RECUPERATING - the power supply switchboard enables to supply the dynamometer with electric power recuperation to the mains or to the DC intermediate circuit. The dynamometer works as a motor or a brake.

More detailed information on request.

ASD type designation	Basic parameters of power supply switchboards					
	Switchboard type	Supply voltage	Overload	Width type D	Width type R	Height / Depth
	[-]	[V / Hz]	[%]	[mm]	[mm]	[mm]
ASD ◘[1] 030-2/0036	SP 30 / 46 / 3 /◘[2]	3x400 / 50	150	600	800	2100 / 600
ASD ◘[1] 050-4/0312	SP 55 / 106 / 4 /◘[2]	3x400 / 50	150	800	1200	2100 / 600
ASD ◘[1] 085-4/0541	SP 90 / 180 / 3 /◘[2]	3x400 / 50	150	800	1200	2100 / 600
ASD ◘[1] 100-4/0637	SP 110 / 210 / 3 /◘[2]	3x400 / 50	150	800	1 400	2100 / 600
ASD ◘[1] 153-4/0974	SPMD 160 / 290 / 3 /◘[2]	3x400 / 50	150	1 200	1 400	2100 / 600
ASD ◘[1] 200-4/1275	SPMD 225 / 399 / 3 /◘[2]	3x400 / 50	150	1 200	1 600	2100 / 600
ASD ◘[1] 220-4/0934	SPMD 280 / 467 / 3 /◘[2]	3x400 / 50	150	1 200	1 600	2100 / 600

Power supply switchboard designation SP(SPMD) xxx / yyy / z /◘[2]

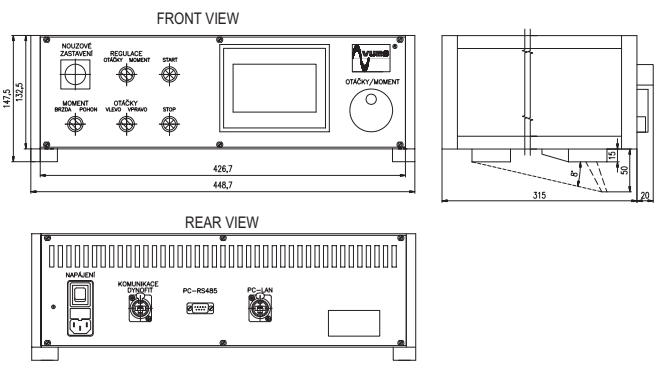
SP	compact converter design	yyy	maximum current (A)
SPMD	modular converter design	z	switching frequency (kHz)
xxx	power (kW)	◘[2]	switchboard type **D** - standard **R** - recuperating

CONTROL UNIT WITH MEASUREMENT

The unit is designed primarily for the manual operation in four-quadrant mode (motor/generator). The unit enables control in speed or torque loop with measurement of these quantities.

The display of measured values, setting of limit levels, setting of speed of set parameters changes and display of dynamometer and power supply switchboard temperatures are provided by a touch LCD panel. The operation mode is defined by controls and the setting of the setpoint value is provided by a digital potentiometer or by the LCD panel.

The unit enables data collection to PC via RS485 or LAN interfaces.



For detailed information see the separate leaflet:
Control Unit with Measurement M350

VUES Brno s.r.o. Mostecká 992/26, 614 00 BRNO, Czech republic tel.: +420 545 551 111 fax: +420 545 551 222 e-mail: mail@vues.cz http://www.vues.cz

OPTIONAL ACCESSORIES

POWER SUPPLY UNITS

Power supply units are designed for supplying of tested machines. The configuration of power supply units is selected in relation to tested machines, performed tests and the customer's requests.

Power supply units are of the following types:

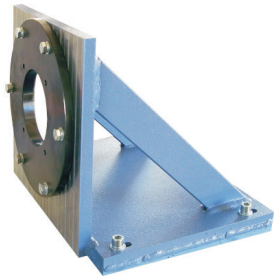
- with DC output
- with AC sinusoidal output
- with AC output with PWM modulation.

CONTROL PANEL OR MEASURING UNIT

The control panel is a suitable solution in laboratories and testing laboratories where it is necessary to control more equipments and devices from one common place. The construction of control panels or measuring units varies and it is solved individually based on the customer's requirements.

APPLICATION SOFTWARE

The application software **DYNOFIT SW** is available for easy measurement and fast measured data collection. Application software **DYNOFIT PROFI SW** is intended for complete electric machines testing.

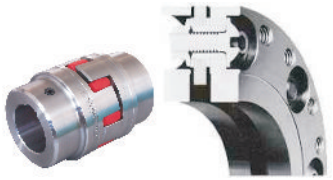


BRACKETS AND FLANGES

Brackets are used for fixing the tested electric motors of flange mounting types according to DIN EN 50 347 and DIN 42 948 on the worktable. For detailed information see the separate leaflet: ***Brackets and Flanges***

COUPLINGS

The connection of the dynamometer and the tested motor is made by a suitable type size of a plate coupling or by a cardan shaft coupling.



CUSTOMER SOLUTION

It is possible to extend test stand DYNOFIT DRIVE by other parts and to build a complex test stand for type testing of electric motors, generators and further for testing of mechanical gearboxes, hydromotors or hydrogenerators.
A complex solution is always designed individually with respect to the necessity to optimize installation to a certain laboratory or testing laboratory room.

Example of a complex testing stand for asynchronous motors loading:

- Test stand DYNOFIT DRIVE with the dynamometer ASD P085-4/0541
- Measuring unit with PC, power analyzer and milliohm-meter
- Static sinusoidal power supply unit 100 kVA
- 8 – channels unit for temperature measurement

Subject to change without prior notice.
10-047-1 4/4 REV. 15-02-01

VUES Brno s.r.o. Mostecká 992/26, 614 00 BRNO, Czech republic tel.: +420 545 551 111 fax: +420 545 551 222 e-mail: mail@vues.cz http://www.vues.cz