



**Technical Specification
Eddy-Current Dynamometer
W Series**

2001-05-01

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1. A Schenck Pegasus Product With Convincing Features

1.1. Fields of Application

In engine testing, eddy-current dynamometers are used as load units for the test specimen. The W series eddy-current dynamometers are especially used for

- Development and testing of all kinds of power engines
- Quality control, running-in and endurance testing of combustion engines
- Components tests like valve actuation, injection systems and ignition systems
- Fuel and lubricating oil tests with engines

The connection of test stand controller and power supply unit of Schenck Pegasus GmbH achieves excellent control features. In case dynamic testing with additional actuation is required, eddy-current dynamometer and asynchronous machine can be combined as “tandem dynamometer”.

1.2. Multi-Purpose and Flexible in Design

The W Series is available in three designs:

- Type W: Multi purpose single rotor type for development of fuel- and diesel engines for passenger cars as well as commercial vehicles
- Type WS: Special single rotor type for high speeds
- Type W3S: High power triple rotor type for development of racing car engines

As standard, the W series dynamometers are designed cradle-mounted with patented Schenck flexure strips. The W3S type is supplied with trunnion bearings. With a second flange, loads can be coupled on both sides. With the starter system available as accessory, the engine does not need starter of its own. As power supply unit, the newly developed LEW 2002 is available.

1.3. Your Advantages

The W series dynamometers stands out for the following features:

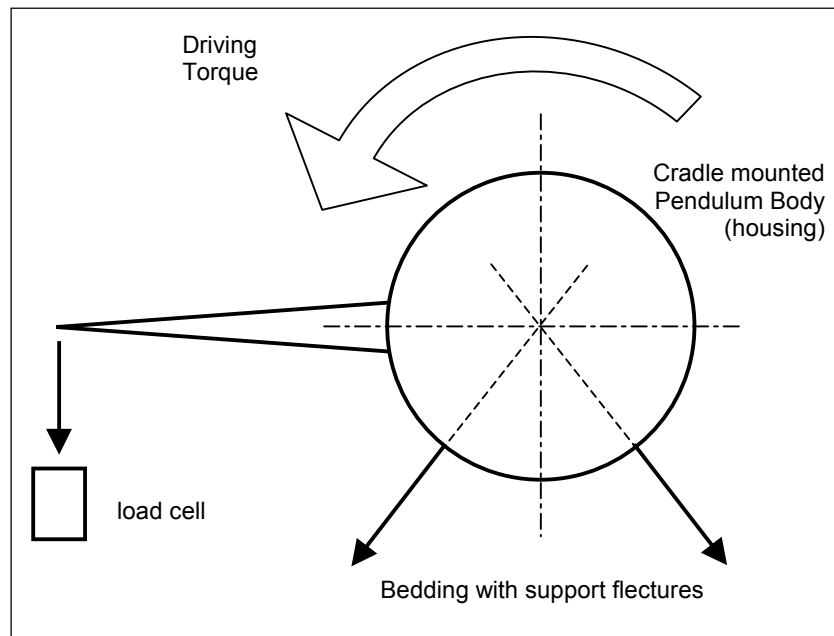
- High speeds for testing engines of passenger cars
- High torques at very low speeds for commercial vehicle engines
- Low inertia at high power
- Suitable for two rotating directions
- High measuring accuracy due to contact-free speed measurement via pulse generator as well as torque measurement via load cell
- Easy maintenance due to Schenck patented flexures

2. How it Works

2.1. Total Concept

The test specimen, generally a combustion engine, drives the dynamometer. The dynamometer absorbs the power and transforms it into heat energy. The test stand controller *x-act* controls observance of speed and desired torque. For the test specimen, this can be carried out via a throttle position control unit.

2.2. Torque Acquisition



Principle of Torque Measurement for Cradle-Mounted Housing

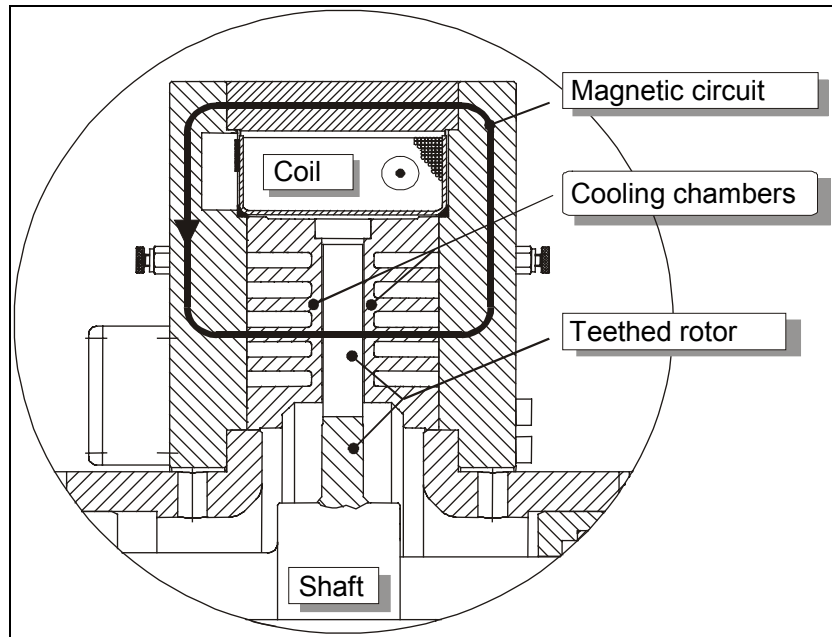
Via a shaft and a flange, the test specimen is connected with the rotor of the dynamometer. The special bedding of the dynamometer with flexure strips only takes up the weight force of the pendulum body and the countervailing force to the load cell. The complete torque acts on the load cell via lever arm. Thus, the measured force is proportional with the braking moment.

2.3. Eddy-Current Dynamometer

In an eddy-current dynamometer, the coil excites a magnetic field through one cooling chamber, the air gap with toothed rotor and the second cooling chamber. The magnetic flux lines close above the iron back. When the rotor rotates, the teeth continually rotate. The air gap varies due to the rotating teeth and gaps. The variation of the air gap continually changes the magnetic circuit and, by that, the magnetic field of the cooling chamber. The varying

magnetic field induces a tension in the front areas of the cooling chambers. The currents generated by that are called *eddy currents*.

With the speed, the rotating frequency of the teeth rises. The magnetic poles reverse more frequently. Therefore, for the full braking moment of the dynamometer, a determined minimal speed is required.



Sectional Drawing of the Magnetic Circuit of the Dynamometer W (Side View)

2.4. Masses to be Coupled

On the flange of the eddy-current dynamometer, shafts can be adapted. In order to simulate additional (vehicle) masses for the test specimen, couplings and flywheel masses can be installed within certain limits as well.

The limit is determined by the weight of the coupled mass, the distance of its center of mass to the flange as well as by the speed. The approximate values e.g. for WS400F with maximally permitted speed ($n_{\max} = 7500/\text{min}$) are: 10kg.

2.5 Power Supply Unit

The power component supplies the eddy-current dynamometer with the excitation current required for its operation. The new LEW2002 Power Component of Schenck Pegasus GmbH has been optimally matched for operation with the type WT Dynamometer. It works with a fully controlled thyristor bridge. The command value presetting for the excitation current comes from the test stand controller. The current regulator built into the power component ensures that the command value is quickly set and is even maintained during temperature changes in the dynamometer. An adjustable current limiter protects the excitation coil from overload. Furthermore, the power component is also equipped with an engine emergency-off relay.



Power Supply Unit LEW 2002

2.6 Test Stand Controller

The standard version *x-act* takes over control of the eddy-current dynamometer (version *x-act_D*). All *x-act* parameters can be configured by the user via comfortable control unit or loaded via the standard remote interface e.g. from an automation system in order to adjust *x-act* optimally to the corresponding specimen. For further information, please see the technical specification 'Digital Test Stand Controller *x-act_{D/DE}* for engine test stands'.



Digital Test Stand Controller *x-act_{D/DE}*

2.7 Control Functions

As standard, eddy-current dynamometers with closed cooling circuit are equipped with a flow control unit and thermal switches in the water outlet. By that, damages due to insufficient cooling are avoided to a great extent. The flow control unit controls a minimal amount of cooling water and the thermal switches a maximally permissible cooling water outlet temperature. These signals must be integrated in the safety circuit of the test stand so that a switch-off in case of unacceptable conditions is possible.

2.8 Interfaces

Interface ①

Mechanical Connections of the Eddy-Current Dynamometer

Master gauge for wholes of the coupling flange	Dimensions and drawing see chapter "Dimensions"
Dimensions of the dynamometer	Drawings see chapter "Dimensions"

Interface ②

Torque signal form load cell, prepared for measurement with 6-wire technology

Nominal range supply voltage	0...10V
Input resistance at reference temperature	350 $\pm$ 2 Ω
Output resistance at reference temperature	350 $\pm$ 1.5 Ω

Interface ③

Speed Signal

Pulse generator	60 pulses/revolution
Distribution voltage	12...24V
Power consumption	< 50mA

Interface ④

Failure Message Dynamometer, Flow Control Unit and Two Temperature Sensors

Loading capacity of the contact	24V/100mA
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Interface ⑤

Exciting Current Dynamometer

Output voltage	-150 ... +170V (fully controlled thyristor bridge)
Output current LEW 2002	0...20 A
Maximum exciting current dynamometer	See chart chapter "Eddy-Current Dynamometer"

Interface ⑥

Internal Control Signals

Command value current, analog input	Voltage range 0...10V
Switch-on signal	24V DC, power consumption < 100mA
Release signal	24V DC, power consumption < 10mA
Failure power supply unit, temperature monitoring	24V DC, 10mA, closed in normal operation (at 0V)

Interface ⑦

Power Supply Test Stand Controller and Power Supply Unit

Power supply	1 ~ PEN , 230 V, 50 / 60 Hz
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Interface ⑧

Test Stand Controller / Test Stand Level

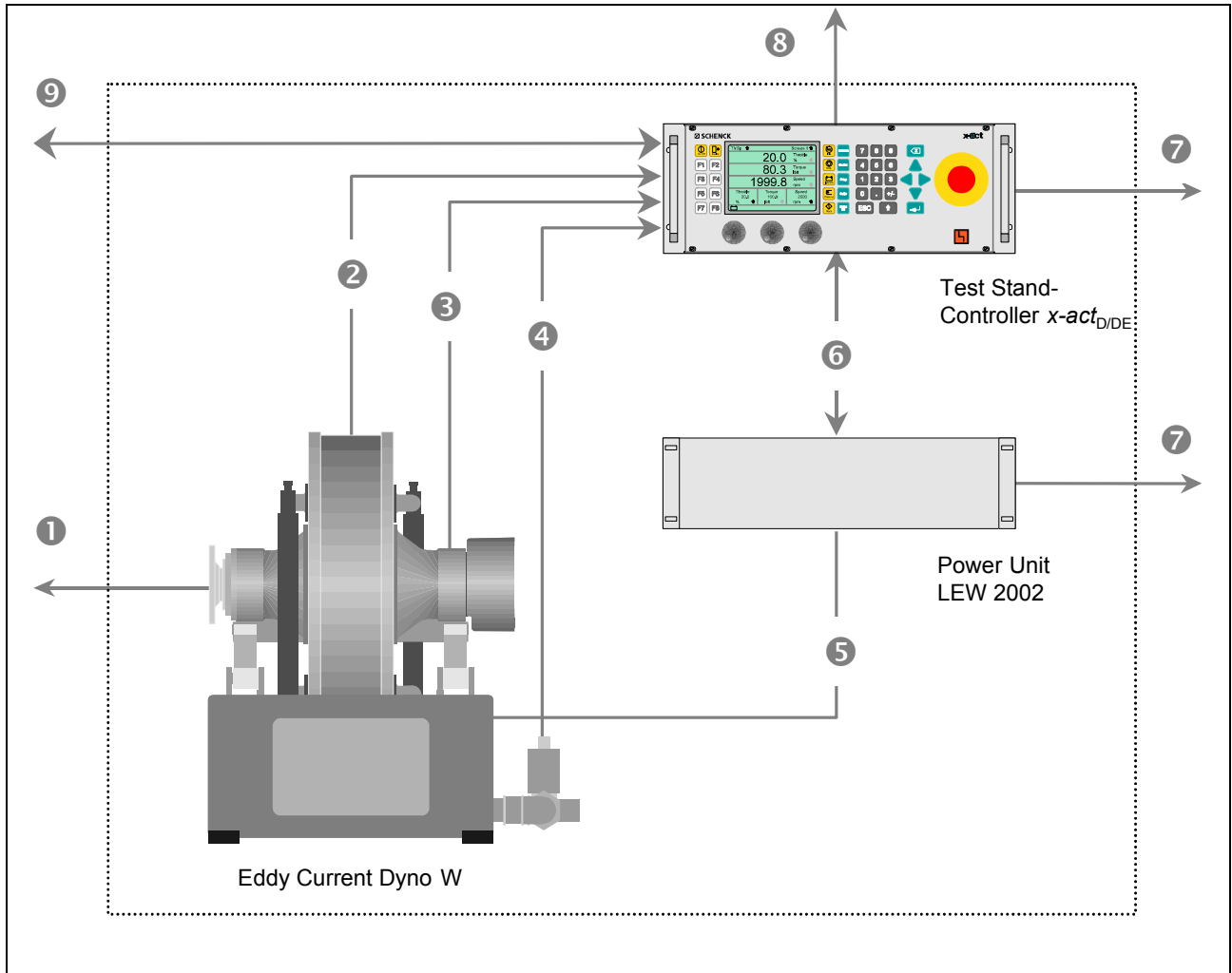
Superset automation	RS 232, CAN, Ethernet
Safety monitoring	Emergency-stop, safety circuit
Further interfaces	See technical specification <i>x-act D/DE</i>

Interface ⑨

Signals Specimen (optional)

Second speed signal for shaft breaking monitoring, pulse generator	60 pulses/revolution
Engine switch-off	Potential-free relay contact

Block diagram W dynamometer with interfaces to the test stand:



Eddy-Current Dynamometer W, Internal and External Interfaces

3. What we Deliver

3.1 Scope of Supply

The standard scope of supply of W consists of the eddy-current dynamometer including frame, coupling flange, load cell, speed generator, flow control unit* and temperature switch* for cooling water, the test stand controller *x-act_D*, the power supply unit LEW 2002, a set of connection cables as well as technical documentation in German or English.

Further components and services completing the standard scope of supply can be ordered additionally (see chapters "Order Numbers" and "Product Options and Accessories").

* not for type W40

3.2 Order Numbers

Standard Scope of Supply

Eddy current dyno Type W		Eddy current dyno Type WS		Eddy current dyno Type W3S	
Complete system W consisting of: eddy-current dynamometer with flexures*, digital test stand controller <i>x-act_D</i> , power supply unit LEW 2002, set of connection cables, technical documantation					
Designation	Order Number	Designation	Order Number	Designation	Order Number
W40	M0078654.01	WS130	M0078660.01	W3S480	M0078760.01
W70	M0078655.01	WS230F	M0078632.01	W3S700	M0078761.01
W130	M0078659.01	WS400F	M0078811.01		
W230	M0078656.01	WS700	M0078663.01		
W700	M0078657.01	WS1200	M0078665.01		

* Type W3S with trunnion bearings as standard

Options Trunnion bearing and Single Dynamometer

Designation	Order number				
	W 40	W 70	W130	W230	W700
Trunnion bearing	Not available	Not available	Upon request	Upon request	Upon request
Second coupling flange	M0055219.01	M005219.02	M0055219.03	M0055219.04	M0055219.06
Eddy-current dynamometer with flexure support as individual component	M0039799.01	M0039801.01	M0039802.01	M0039803.01	M0039805.01

Designation	Order number				
	WS130	WS230F	WS400F	WS700	WS1200
Trunnion bearing	Upon request	Upon request	M0064484.01	Not available	Not available
Second coupling flange	M0055219.07	M0055219.08	M0055219.09	M0055219.10	M0055219.11
Eddy-current dynamometer with flexure support as individual component	M0046259.01	M0075841.01	M0046455.01	M0048090.01	M0048909.01

Designation	Order number	
	W3S480	W3S700
Trunnion bearing	Standard	Standard
Second coupling flange	M0058522.01	M0058522.02
Eddy-current dynamometer with flexure support as individual component	M0039863.01	M0054534.01

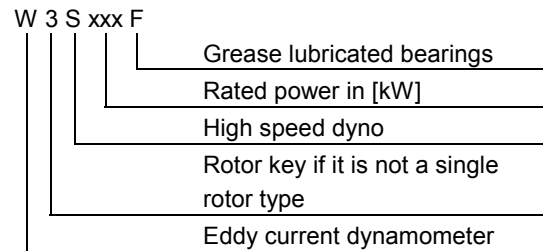
Option Digital Controller *x-act_{DE}*

Designation	Order number
Digital Controller <i>x-act_{DE}</i>	M0067909.01

4. Figures, Data, Facts

4.1. Type Key

The eddy-current dynamometer of the Schenck Pegasus series is characterised by the initials "W":



4.2 Eddy-Current Dynamometer

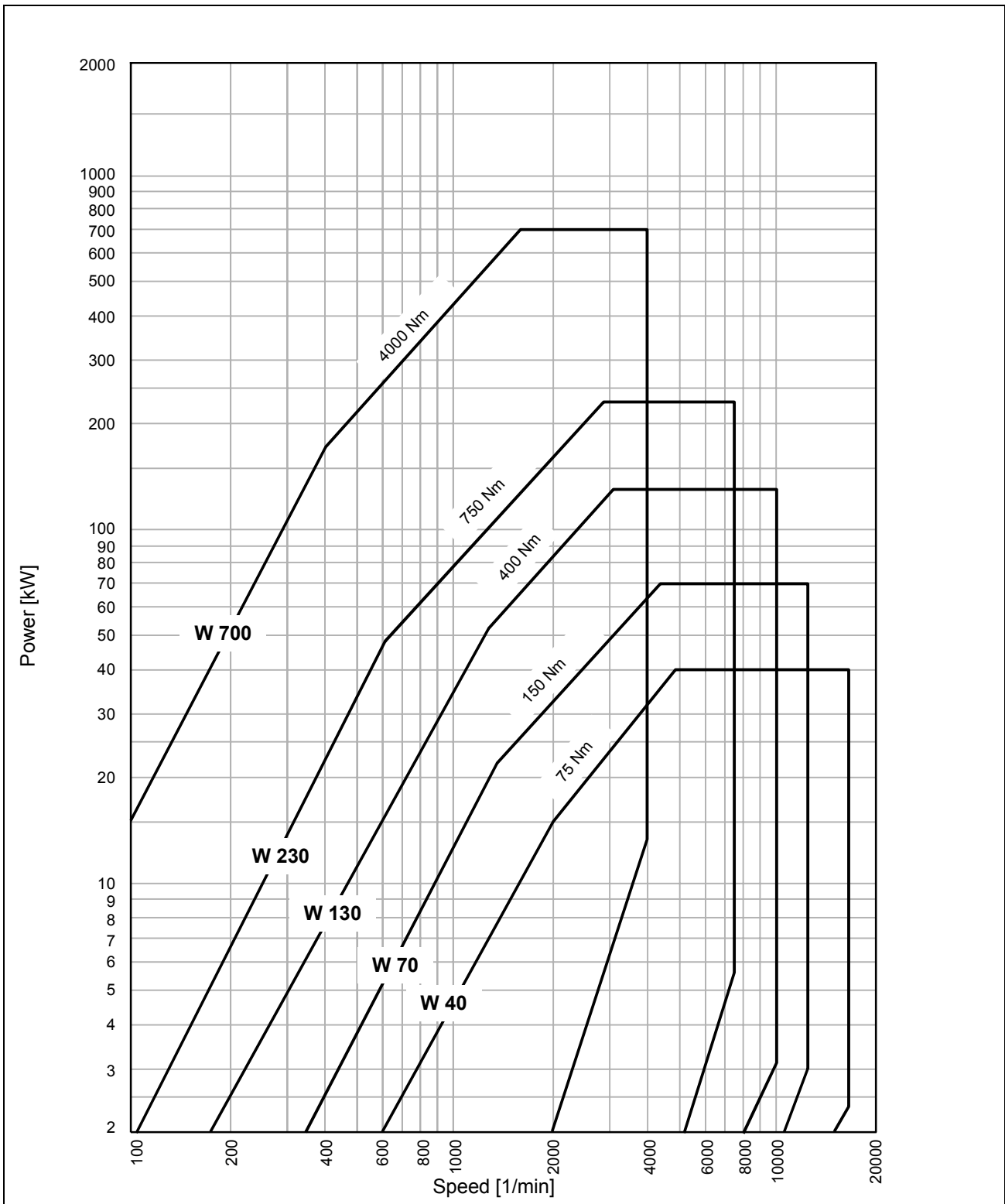
		W 40	W 70	W 130	W 230	W 700
Power	[kW]	40	70	130	230	700
Rated torque	[Nm]	75	150	400	750	4000
Minimal speed for rated torque	[rpm]	2000	1350	1250	620	400
Maximal speed	[rpm]	17000	13000	10000	7500	4000
Minimal speed for maximal power	[rpm]	5093	4457	3104	2928	1671
Moment of inertia	[kgm²]	0,01	0,035	0,14	0,53	7,9
Maximal share of mass to be coupled at n_{max}	[kg]	0,5	1,0	2,0	4,5	26,0
Maximum exciting current	[A]	1,8	3,6	6,1	6,1	10,0
Weight	[kg]	125	170	270	472	1810
Color pendulum body		RAL 7032				
Color frame		RAL 7022				
Operating temperature	[°C]	0...+70 without cooling water addition -25...+70 with antifreezer and power reduction of 10-20%				
Transporting and storage temperature	[°C]	-50...+85				
Cooling water supply	[m³/h]	see chapter "Cooling Water Supply"				
Torque / Speed Measuring System						
Measuring accuracy speed	[rpm]	± 1, not lower than 0.025 % of rating				
Measuring accuracy torque	[%]	0.2 , referring to rating				
Control accuracy speed*	[rpm]	± 10				
Control accuracy torque*	[%]	± 1 , referring to rating				

* referring to the system eddy-current dyno, power supply unit, test stand controller

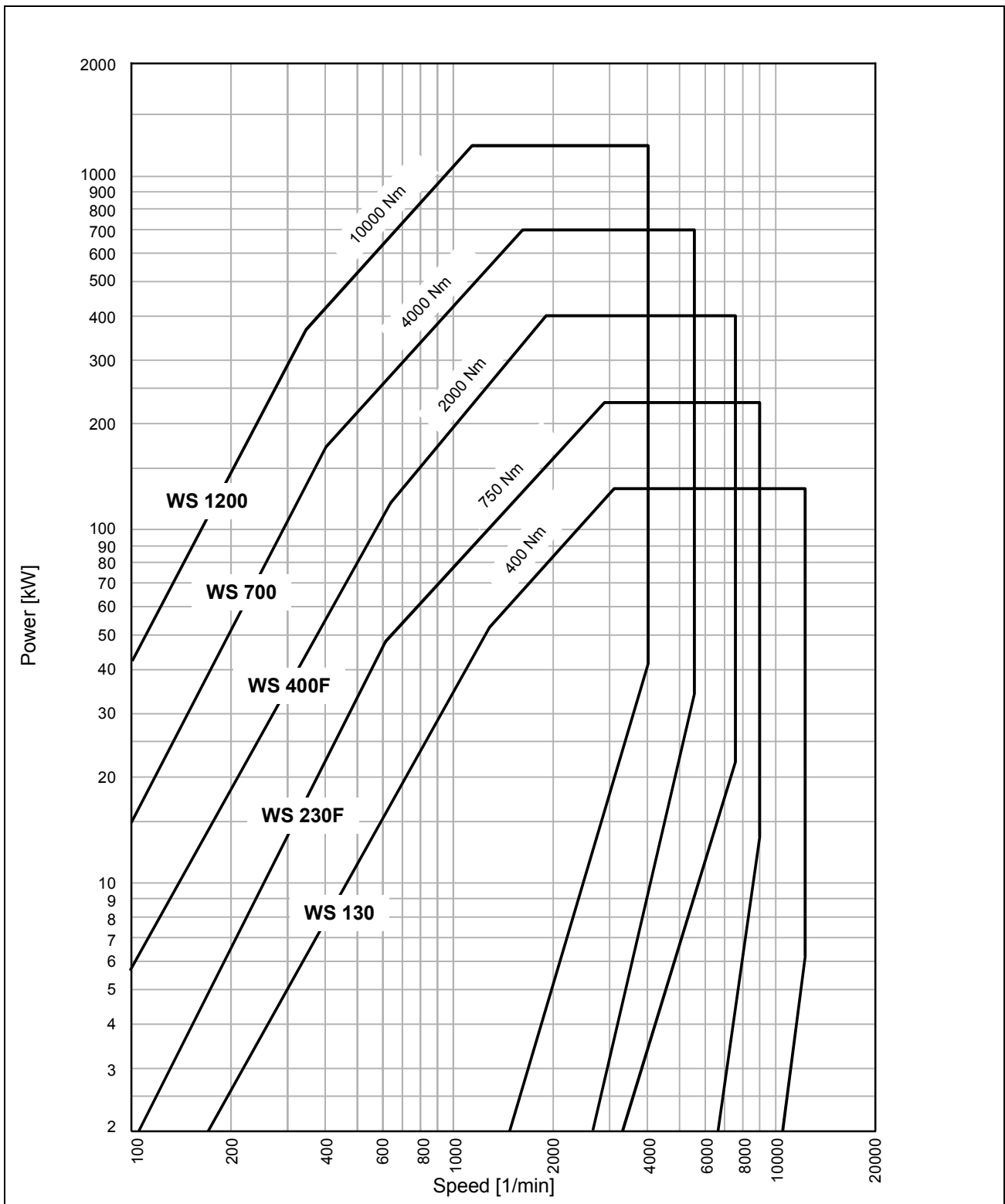
		WS 130	WS 230F	WS 400F	WS 700	WS 1200	W3S 480	W3S 700
Power	[kW]	130	230	400	700	1200	480	700
Rated torque	[Nm]	400	750	2000	4000	10000	750	2000
Minimal speed for rated torque	[rpm]	1250	620	620	400	340	3000	1400
Maximal speed	[rpm]	13000	10000	7500	5500	4000	13000	10000
Minimal speed for maximal power	[rpm]	3104	2928	1910	1671	1146	6112	3443
Moment of inertia	[kgm²]	0,14	0,53	2,0	8,0	33,0	0,46	1,6
Maximal share of mass to be coupled at n_{max}	[kg]	2,0	4,5	10,0	26,0	63,0	2,0	4,5
Maximum exciting current	[A]	6,1	6,1	5,5	10,0	13,0	18,0	18,0
Weight	[kg]	276	480	820	1890	3990	860	1550
Color pendulum body		RAL 7032						
Color frame		RAL 7022						
Operating temperature	[°C]	0...+70 without cooling water addition -25...+70 with antifreezer and power reduction of 10-20%					0...+60	0...+70
Transporting and storage temperature	[°C]	-50...+85						
Cooling water supply	[m³/h]	see chapter "Cooling Water Supply"						
Torque / Speed Measuring System								
Measuring accuracy speed	[rpm]	± 1, not lower than 0.025 % of rating						
Measuring accuracy torque	[%]	0.2 , referring to rating						
Control accuracy speed*	[rpm]	± 10						
Control accuracy torque*	[%]	± 1 , referring to rating						

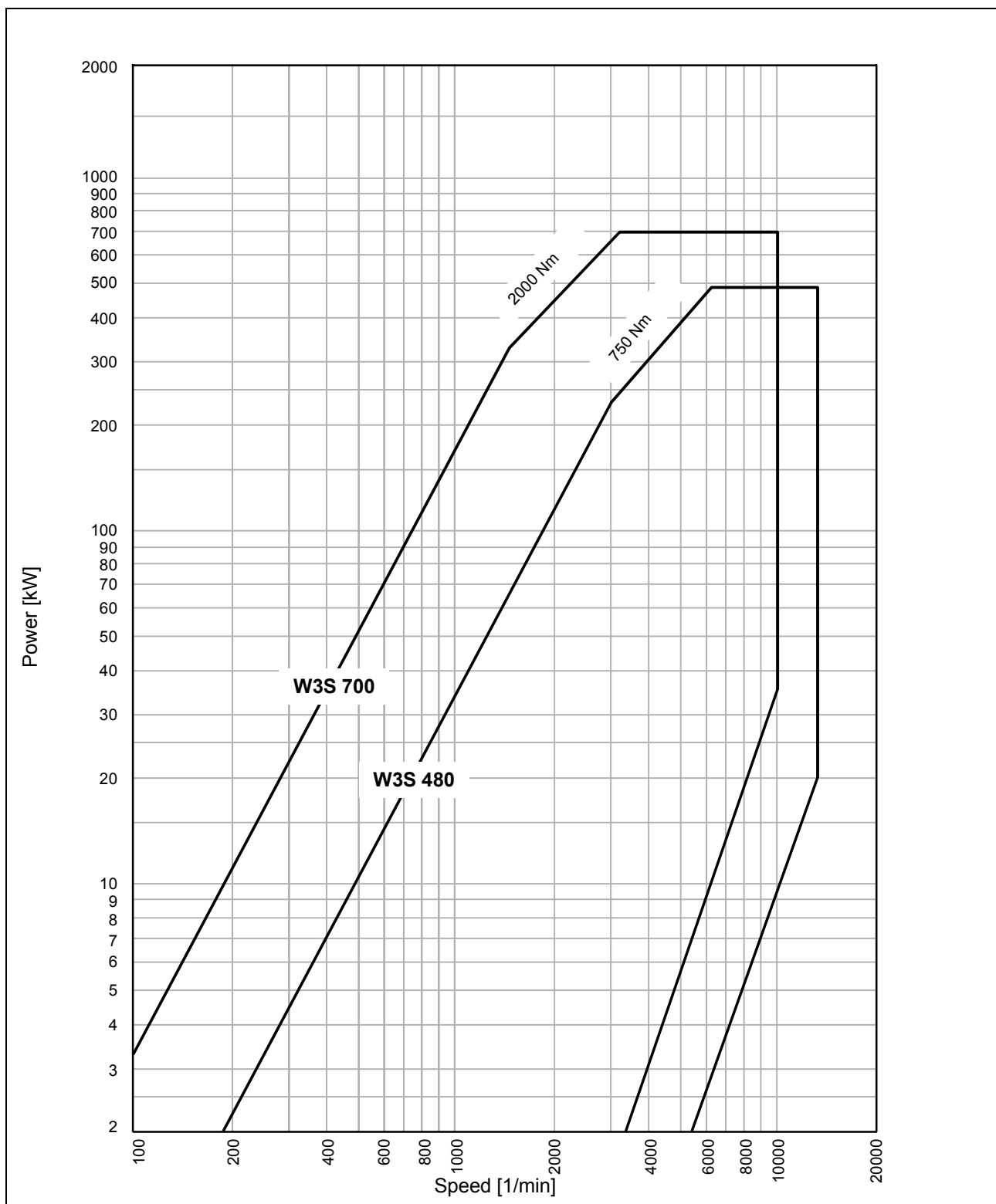
* referring to the system eddy-current dyno, power supply unit, test stand controller

4.3 Power Ranges



Power diagram **single** rotor W-dynamometers

Power diagram **single** rotor WS-dynamometers



Power diagram **triple** rotor WxS-dynamometers

4.4 Power Supply Unit

The eddy-current dynamometer is supplied with power by power supply unit LEW 2002.

Power supply	[V]	1 ~ PEN, 230, 50 / 60 Hz (three-wire 2.5mm ² with wire termination sockets for connecting to the terminal strip)
Protection by fuse	[A]	20, ultra-rapid
Command value input	[V]	0...10 analog
Output Voltage	[V]	approx. -150 - +170
Output Current	[A]	0 - 20 (maximal value can be set by current limiter)
Operating temperature	[°C]	0...+35 without external ventilation 0...+40 with external ventilation
Transporting and storage temperature		-25...+65
Relative humidity	[%]	max. 95, 30 days a year, not condensing class F (DIN 40 050)
Protection system		IP 00 (DIN 40 050) (must be installed in cabinet or housing)
Weight	[kg]	10.9

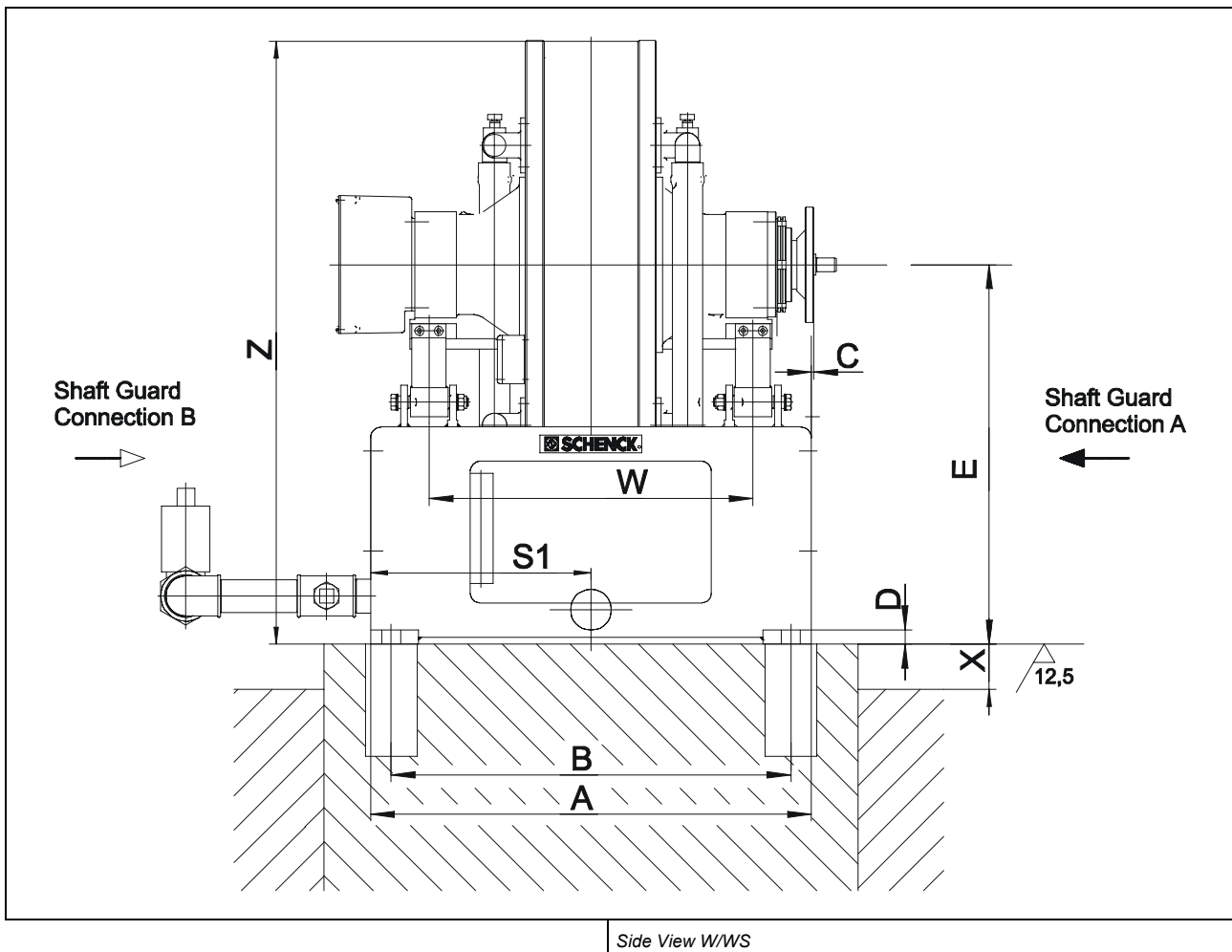
The unit can also be delivered for operation with a power supply of 110V. However, the output voltage is then reduced to approx. -70 - +80V.

4.5 Modules and Cable Lengths

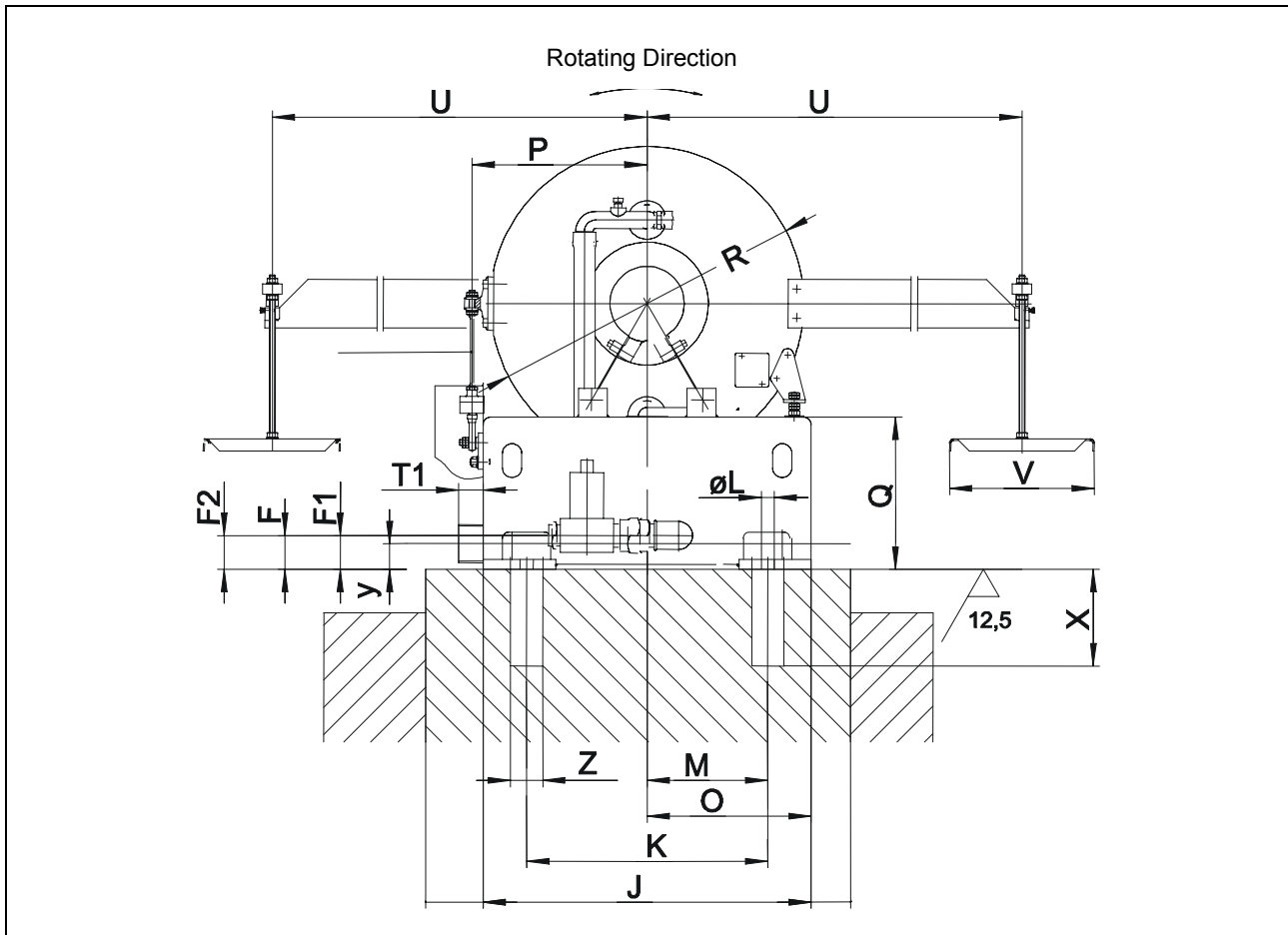
	Total Cable Length	Dimensions
Modules		
Test stand controller <i>x-act_{D/DE}</i>	-	19" 4 HE
Power supply unit LEW 2002	-	19" 2 HE
Measuring and Control Cables		
Between test stand controller and power supply unit	2 m	-
Between test stand controller and eddy-current dynamometer	15 m	-
Between power supply unit and eddy-current dynamometer	15 m	-
Between test stand controller and specimen (option)	15 m	-

4.6 Dimensions

On the following pages, you will find foundation dimensions, cooling water connection, flange drawing for shaft connection and dimensioning of the calibration system.

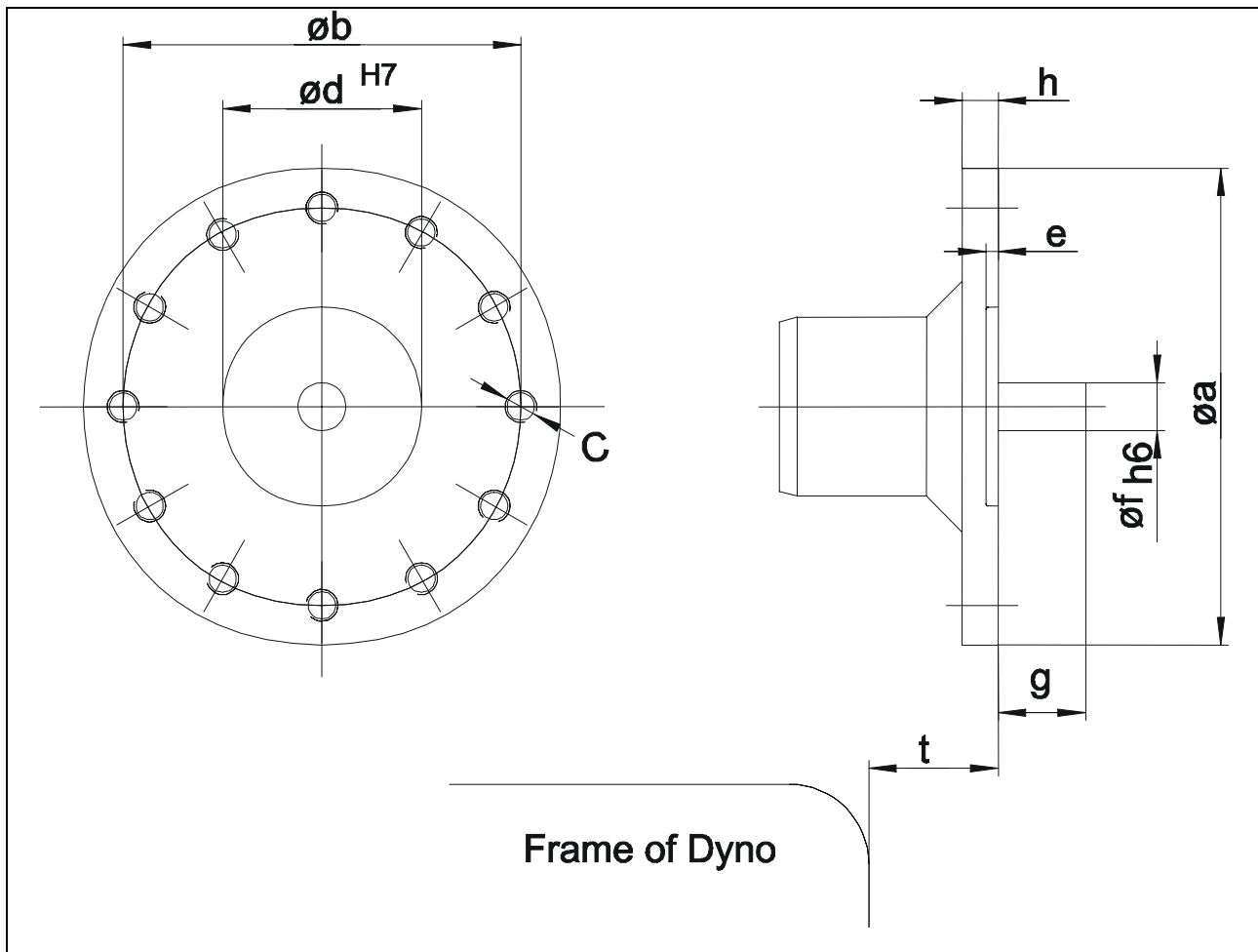


S1 Water outlet	W 40	W 70	W(S) 130	W(S) 230(F)	WS 400 F	W(S) 700	WS 1200
A	450	450	540	640	800	1000	1200
B	370	370	470	580	720	900	1100
C	- 68	- 32,5	-21	3	5	42	86
D	21	21	21	21	21	21	30
E	460	460	500	550	700	800	1050
S1 Water outlet	225	----	----	----	----	----	----
W	200	290	370	470	620	780	930
X	240	240	150	50	----	----	----
Z	626	674	728	875	1112	1335	1400



View W/WS From Cooling Water Connection

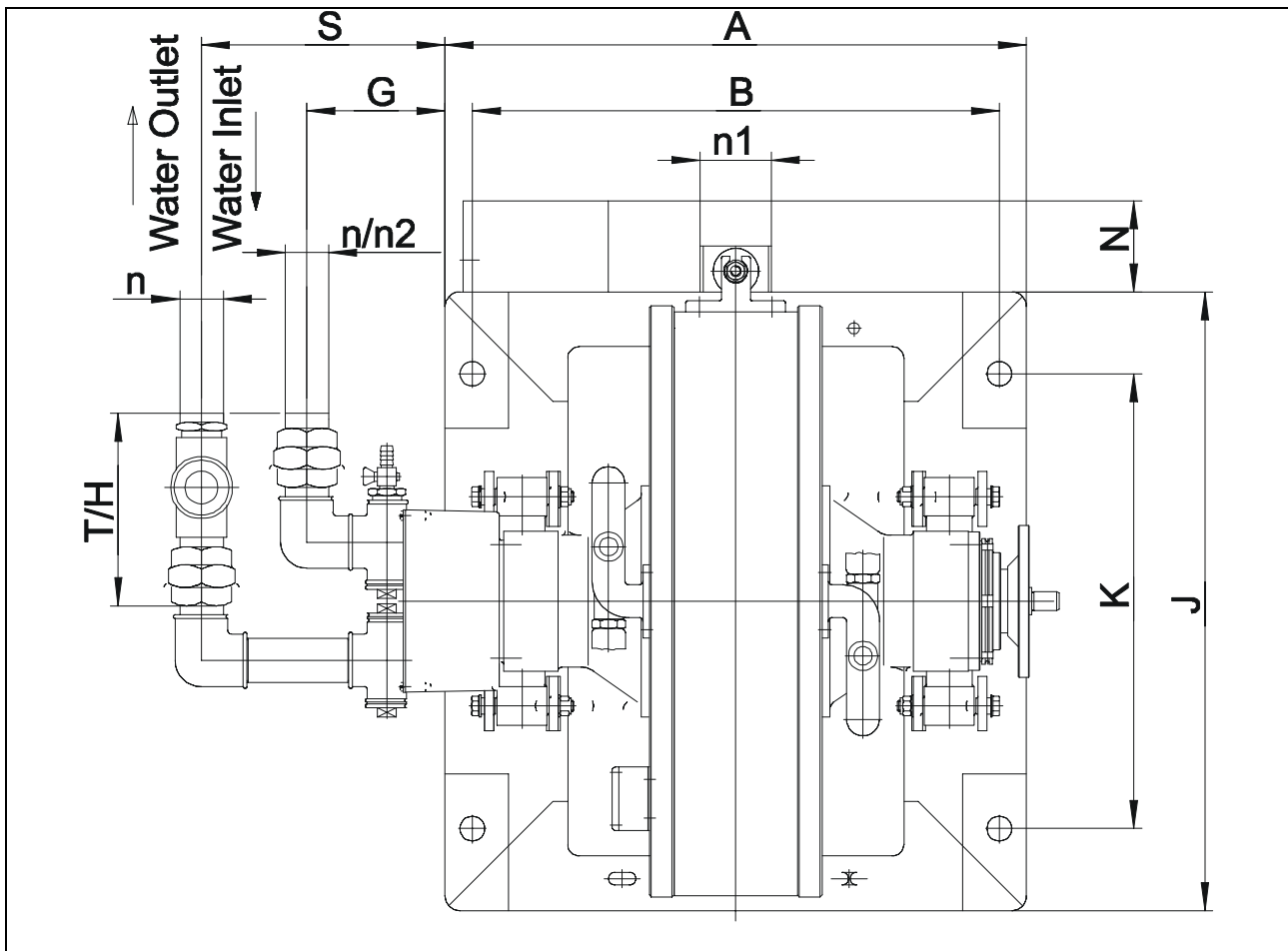
Dimensions in mm	W 40	W 70	W(S) 130	W(S) 230(F)	WS 400 F	W(S) 700	WS 1200
F Water In / Outlet	172	110	93	70	110	----	----
F 1 Water Inlet	----	----	----	----	----	215	280
F 2 Water Outlet	----	----	----	----	----	125	160
J	450	450	540	680	850	1050	1450
K	320	320	375	500	640/750	750	1000
Ø L	23	23	27	27	27/22	27	27
M	160	160	187,5	250	320	375	500
O	225	225	270	340	425	525	725
P	248	255	294	362	448	568	760
Q	310	310	315	315	400	400	570
R	332	428	516	650	824	1070	700
T 1	15	----	----	----	----	----	----
U	974	974	974	1461	1461	1461	1461
V	150	150	320	320	320	450	450
Y Water Outlet	65	----	----	----	----	----	----
Z	70	85	85	85	100	100	100
X	250	250	250	250	250	250	250



Dimensions of the Coupling Flange

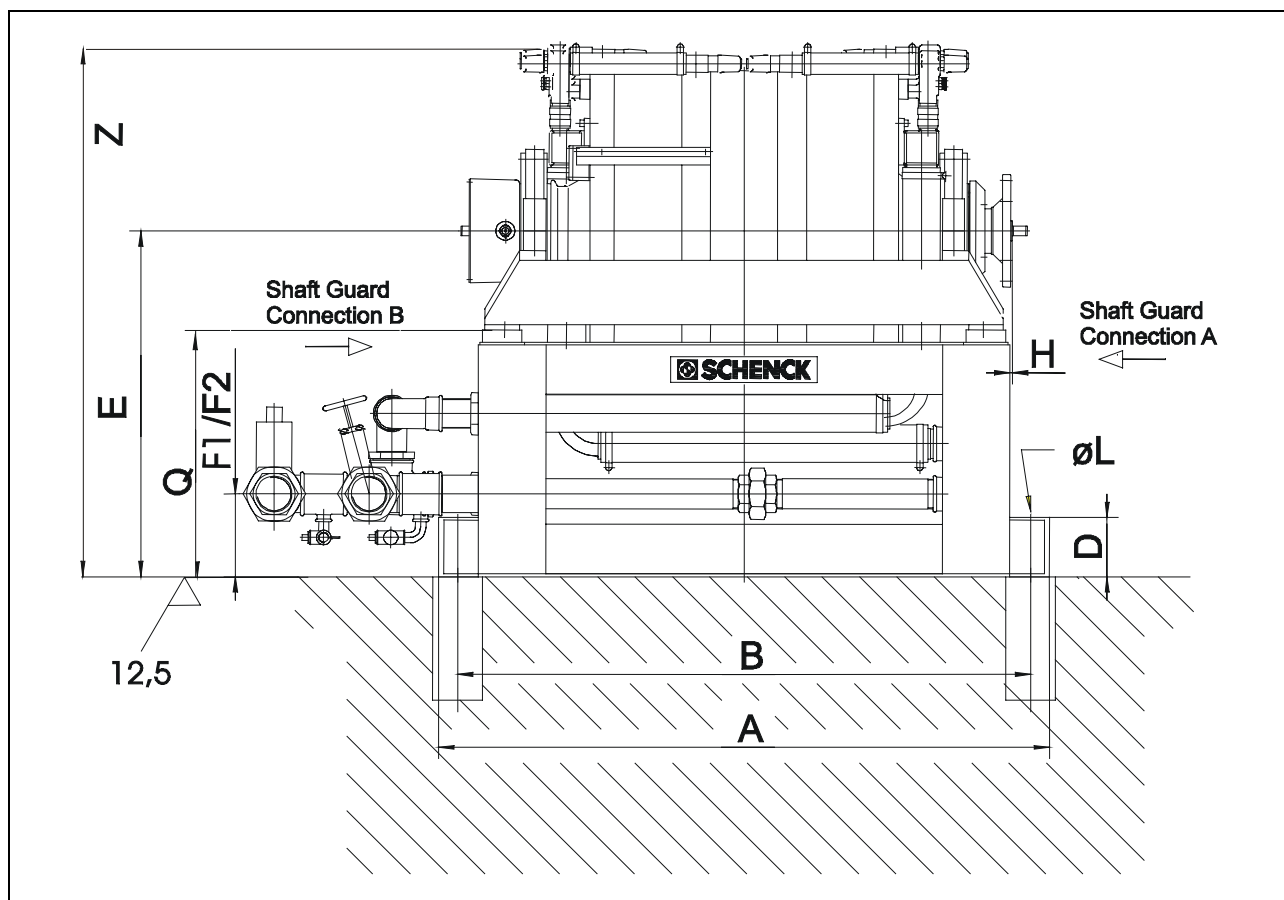
Dimensions in mm	W 40	W 70	W(S) 130	W(S) 230 (F)	WS 400 F	WS 700	WS 1200
$\varnothing a$	100	120	145	167	227	310	260
$\varnothing b$	84	100	127	1) 120 2) 148	204	280	218
c	4 x M8	4 x M8	4 x M10	1) 4 x M10 (60°, 120°) 2) 6 x M10	12 x M10	12 x M12	8 x M16
$\varnothing d$	----	----	----	----	110	170	----
e	----	----	----	----	4	5	----
$\varnothing f$	8	12	16	20	25	40	----
g	15	22	25	33	39	55	----
h	9	9	10	12	16	20	30
t	- 68	- 32,5	-21	3	5	42	86

- 1) Hole circle 1
- 2) Hole circle 2



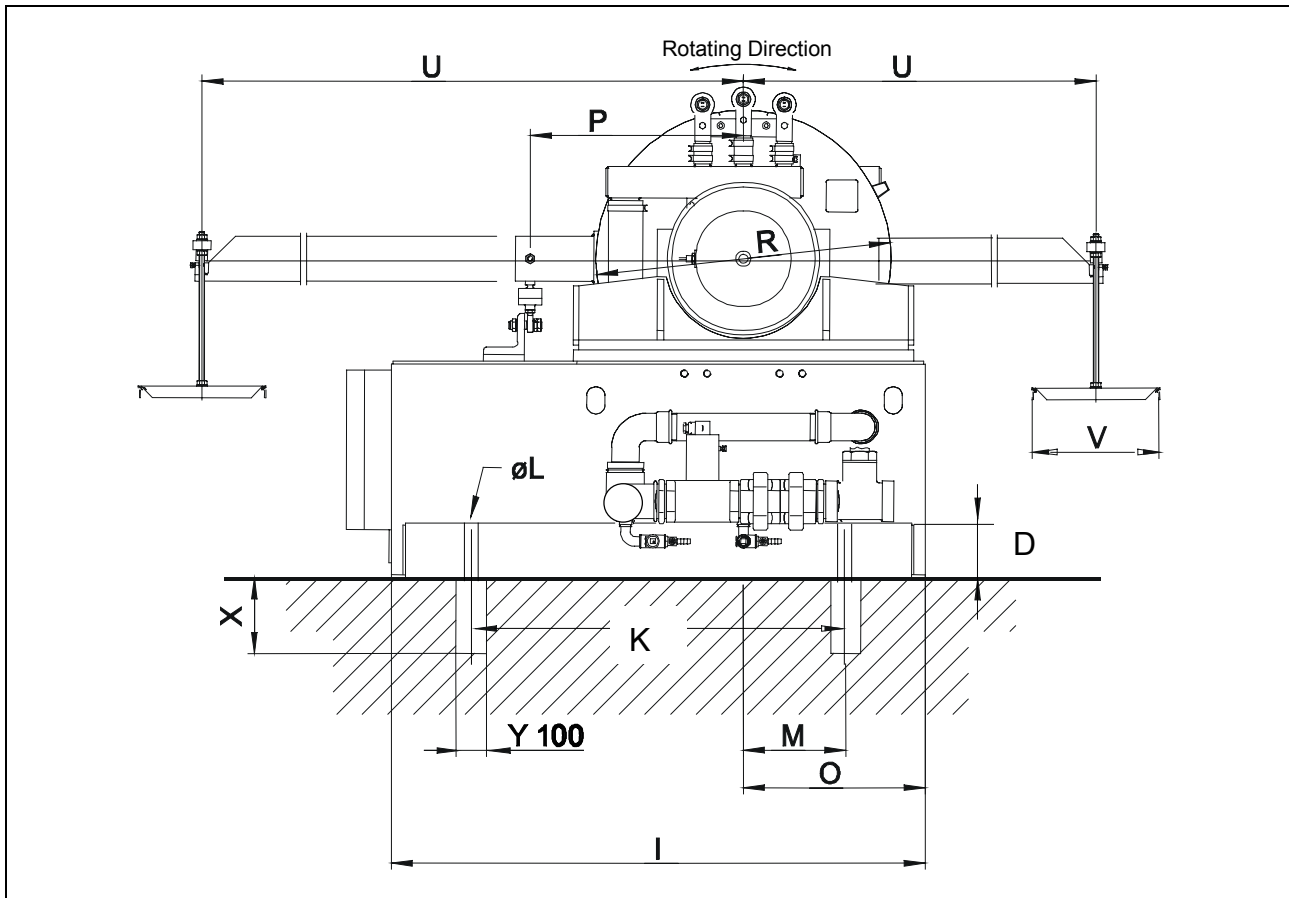
View From Top

Dimensions in mm	W 40	W 70	W(S) 130	W(S) 230(F)	WS 400 F	W(S) 700	WS 1200
A	450	450	540	640	800	1000	1200
B	370	370	470	580	720	900	1100
G Water Inlet	110	122	130	140	160	140	200
H Water Outlet	95	152	188	220	216	274	275
J	450	450	540	680	850	1050	1450
K	320	320	375	500	640	750	1000
N	96	96	96	96	96	96	96
n Water In / Outlet	----	1 "	1 1/4"	1 1/2"	2 "	2 1/2 "	100
n1 Water Outlet	50	----	----	----	----	----	----
n2 Water Inlet	3/4 "	----	----	----	----	----	----
S Water Outlet	----	202	218	245	302	260	450
T Water Outlet	----	161	188	225	319	453	482



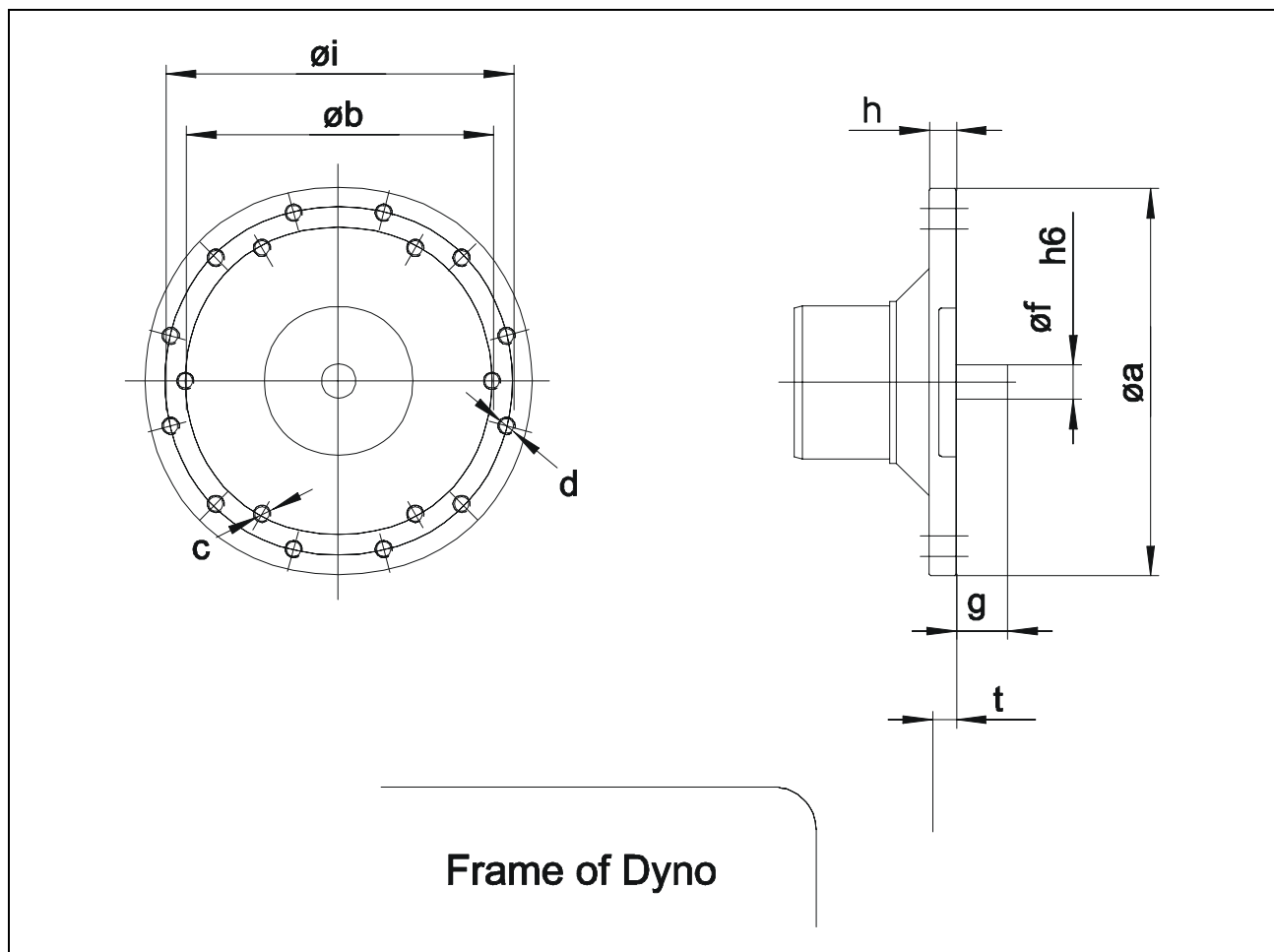
Side View W3S

Dimensions in mm	W3S 480	W3S 700
A	984	1232
B	910	1156
D	120	120
E - Z	700	700
F1 Water Outlet	190	167
F2 Water Inlet	270	167
H	- 14	5,5
Ø L	27	27
Q	500	500
Z	1025	1076



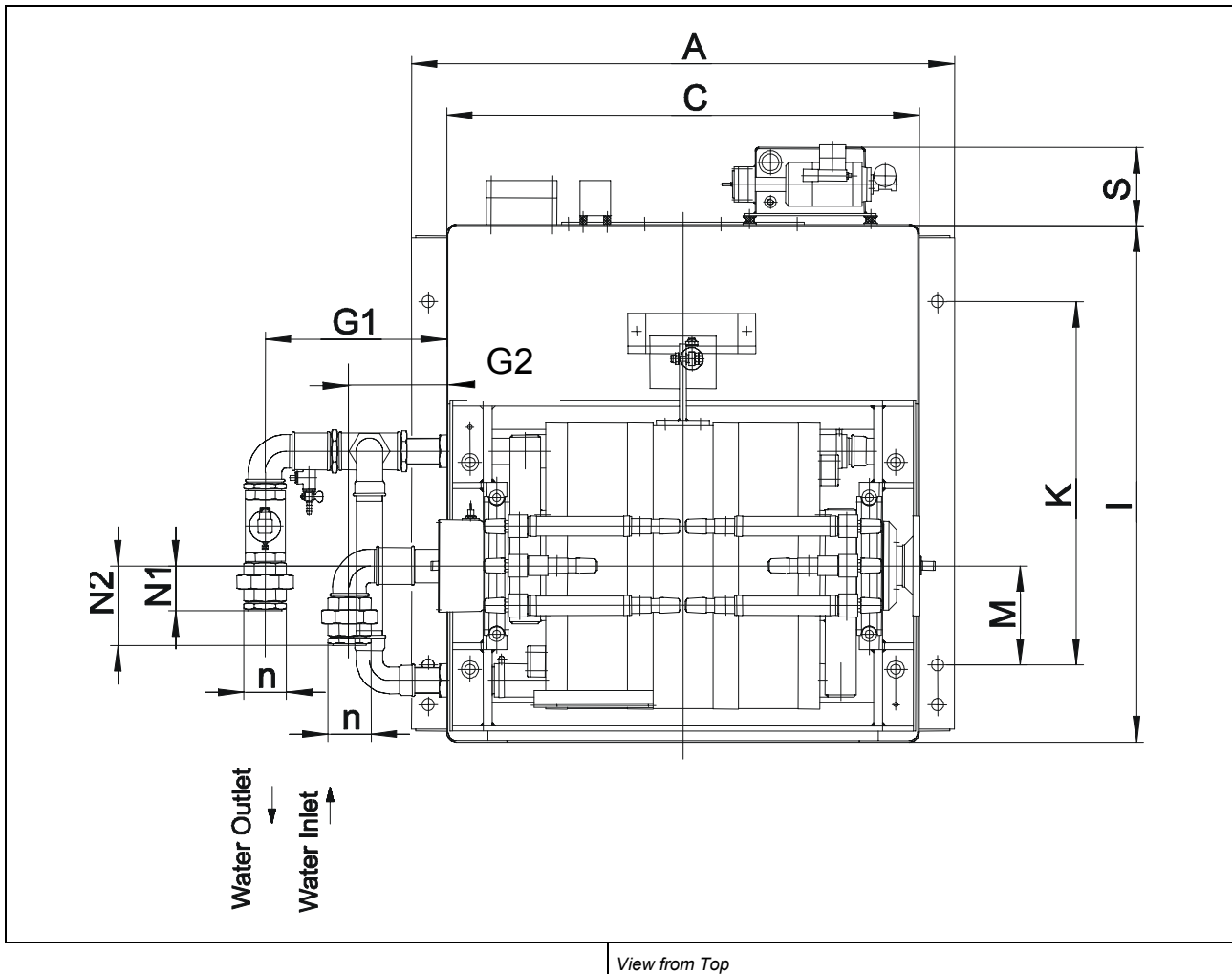
View WWS From Cooling Water Connection

Dimensions in mm	W3S 480	W3S 700
I	910	1175
K	590	825
ø L	27	27
M	140	225
D	300	400
P	450	470
R	516	650
U	974	1529,6
V	320	300
X	250	250



Dimensions of the Coupling Flange

Dimensions in mm	W3S 480	W3S 700
ϕa	157	227
ϕb	140	180
C	6 x M10	6 x M10
D	-----	12 x M10
ϕf	16	20
G	23	30
H	12	16
ϕi	-----	204
t	- 14	5,5



Dimensions in mm	W3S 480	W3S 700
A	984	1232
C	824	1072
G 1 Water Outlet	215	412
G 2 Water Inlet	115	220
I	910	1175
K	590	825
M	140	225
N 1 Water Outlet	363	181
N 2 Water Inlet	138	102
n	2 "	2 ½
S	175	175

5. Things You Should Observe

5.1. Set-Up

For calibrating, the weighing scales must be loaded with calibration weights. For that, it is recommended to provide a surrounding free space of at least 0.5 m.

Installation position

Transversal slope	max. $\pm 15^\circ$
Longitudinal slope	max. $\pm 15^\circ$

5.2. Cooling Water Supply

The energy converted into heat during braking is dissipated from the dynamometer with the cooling water. The cooling water supply can either be made from the water main (for once-through flow) or from a recooling system (cooling water reuse). We recommend to install a magnetic filter in the inlet in order to filter magnetisable particles from the cooling water.

Directly in front of the dynamometer, a simple locking valve for adjustment of the flow required has to be provided. In order to guarantee complete filling of the dynamometer, the pressure difference between inlet and outlet must be at least 0.4 bar. The maximal admission pressure must not exceed 4 bar.

Technical Data:

Cooling water pressure in front of the dynamometer	0,4 to 4 bar
Cooling water inlet temperature for nominal performance	max. 40°C
Cooling water outlet temperature	
For calcareous water (> 5° dH)	max. 50° C
For low-lime water (< 5° dH)	max. 70°C (W3S480 = 60°C)
Grain size of solid ingredients	max. 1mm

Standard values cooling water quality:

Characteristic value	Unit	Cooling System	
		Once-Through Flow	Circuit
pH	-	7.2 – 9.5	7.2 – 9.5
Total hardness	°dH	< 30	< 40
Carbonate hardness	°dH	< 10	< 5
CO ₂ free, aggressive	mg/l	< 20	< 3
Non-carbonate hardness	°dH	< 28	< 35
Total salt content (evaporation residue)	mg/l	< 1200	< 1200
Sulfates SO ₄ ²⁻	mg/l	< 15	< 150
Chlorides Cl ⁻	mg/l	< 150	< 150
Nitrates NO ₃ ⁻	mg/l	< 50	< 50
Ammonium NH ₄ ⁺	mg/l	< 5	< 5
Iron Fe	mg/l	< 1.0	< 1.0
Manganese Mn	mg/l	< 0.15	< 0.15
Oil content	mg/l	0	0
Algae growth	-	not permitted	not permitted

The cooling water consumption is calculated from the power to be dissipated and the permitted temperature difference between inlet and outlet according to the following equation:

$$Q = 0,86 \cdot \frac{P}{\Delta t}$$

Q [m³/h] = Cooling water quantity

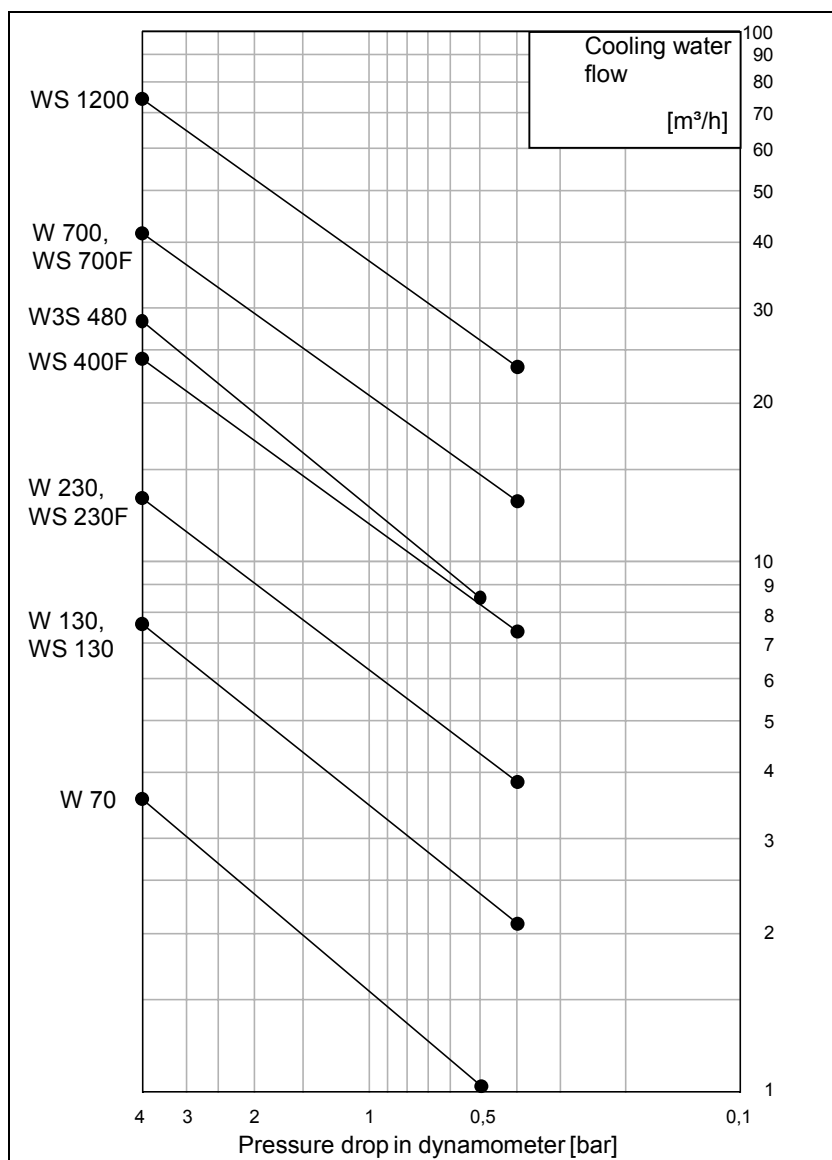
P [kW] = Power to be braked down

Δt [°C] = Temperature range t_A – t_E

t_A [°C] = Cooling water outlet temperature

t_E [°C] = Cooling water inlet temperature

In order to guarantee the cooling water flow required, a pressure difference between inlet and outlet must exist. The following diagram shows this correlation. For eddy-current dynamometers with open cooling water circuit (type W40) without countervailing pressure, the pressure drop corresponds with the minimal water pressure required.



Cooling Water Flow Depending on the Difference in Water Pressure

5.3. Decalcification of the Dynamometer

The following description is valid for all eddy-current dynamometers in which the cooling water system between the two locking valves of the customer at the cooling water inlet and at the cooling water outlet is closed.

General

Deposits of boiler scale at parts getting in contact with cooling water block the heat transfer to the cooling water. In case the dynamometer is calcified, overheating leads to severe damages due to hot cracks and deformations. Therefore, the dynamometer must regularly be rinsed with a commercial boiler cleansing compound. The decalcification frequency depends on the quality of the available cooling water as well as of the temperature of the cooling water at the outlet of the dynamometer. In case of very hard cooling water and outlet temperatures above 50°C (122°F), the dynamometer should be decalcified after 500 operating hours.

Suitable boiler cleansing compounds are e.g.:

LITHAX-A

Manufacturer: Dr. Fischer & Haller, Dieburger Str. 100, D-64846 Groß-Zimmern

Acitol-S

Manufacturer: Schilling-Chemie GmbH, Postfach 11 36, D-71691 Freiberg/-Neckar

In case these boiler cleansing compounds are not available to you, you can use other products as well. The boiler cleansing compound, however, must not corrode the materials of the dynamometer getting in contact with cooling water.

List of materials used in the cooling water system

In case you use boiler cleansing compounds other than the ones recommended above, the supplier should confirm that his product does not corrode the following materials of the dynamometer:

Eddy-Current Dynamometers of the W Series		
Component	Material	Designation
Armatures	gunmetal	G-CuSn5 ZnPb
Armatures	malleable casting	GTW 35
Cooling chamber carrier	constructional steel	RSt 37-2
Cooling chamber	Heat resistant steel	high-quality boiler plate
Sealings		ethylene-propylene EPDM
Tube	copper	Cu

5.4. Shaft Connections

For connecting the engine to be tested with the eddy-current dynamometer, a shaft is required. Please note that, depending on dynamometer, specimen and shaft connection characteristic torsion frequencies and critical whirling speeds exist. Those must not be excited during operation. Schenck Pegasus GmbH offers different shafts for all applications. Furthermore, order a shaft design specifically for your test application can be ordered as service.

6. Product Options and Accessories

6.1. Trunnion Bearings

As standard, the dynamometer is supplied cradle-mounted on flexure strips. As an alternative, we offer trunnion bearings. The technical data and dimensions described in chapter "Figures, Data, Facts" do not change due to the use of trunnion bearings.

6.2. Second Coupling Flange

For some applications such as for engines for starting and tractor operation supplied by the customer, a connection to the rear shaft end of the dynamometer is required. For that, the protection cover of the rear end of the shaft will be removed and an additional coupling flange will be installed. The connection drawing (centering diameter, hole circle etc.) as well as the projection of the base frame correspond with the coupling flange of the engine.

For operation with two coupling flanges and connection of masses at both sides, the following must be observed:

- for maintaining the masses coupled on, the speeds allowed have to be reduced to 90% of the corresponding values and
- for maintaining the speeds, the masses allowed on both sides reduce to 81% of the corresponding values.

The order numbers for the coupling flanges of the various dynamometer sizes, please take from chapter "Order Numbers"

Scope of supply:

- second coupling flange
- protection cover for coupling flange (The protection cover for the rear end of the shaft is not required)

6.3. Magnetic Filter

In order to avoid a blocking of the cooling ducts of the eddy-current dynamometer, we recommend to use a Schenck Pegasus GmbH magnetic filter. This filter filters magnetic particles, solid ingredients as well as deposits of boiler scale out of the water inlet (for that, please see our specification „Accessories for Dynamometers“).

6.4. Starter System

For test stands without own starter system of the engine, Schenck Pegasus GmbH offers a starter system installed at the free end of the shaft of the dynamometer. The Power is adapted to the eddy-current dynamometer used (for that, please see our specification „Accessories for Dynamometers“).

6.5. Calibration Unit

After each intervention in the area of the load cell or the pendulum body receptacle, a calibration of the eddy-current dynamometer is recommended. For controlling the torque measuring unit, we recommend the Schenck Pegasus GmbH adjustment system consisting of two testing levers and two weighing scales (for that, please see our specification „Accessories for Dynamometers”).

6.6. Measuring Weights

Measuring weights for the calibration unit are available individually and serve for loading the calibration levers for torque adjustment (for that, please see our specification „Accessories for Dynamometers”).

6.7. Test Stand Controller

x-act_{DE}

In addition to the regulation of the load unit, regulation and control of the engine is required at the engine test stand as well. *x-act_{DE}* can take over this task in addition to regulating the load unit. Further information, please take from the ‘Technical Specification Digital Test Stand Controller *x-act_{D/DE}*’.

6.8. Individual Component Eddy-Current Dynamometer

The eddy-current dynamometers can also be ordered as individual components consisting of pendulum body of the dynamometer including frame, load cell and speed generator as well as flow control unit for the cooling water.



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Development Test Systems

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