ST/SW

ST AND SW TORQUE ROTARY UNITS

CABLE CONNECTION

Compact connector for any orientation of cable connection

WEISS APPLICATION SOFTWARE

Fast, easy and secure setting through its unique user software

The ST 140 rotary unit operating in perfect harmony with the LS 280 linear assembly system. The installation at Jouhsen-bündgens Maschinenbau GmbH is used to produce medical needles at high speeds. Thanks to the new system, it has been possible to almost double the output.

The ST and SW rotary units with direct drive and absolute encoder are exactly designed to match fast, precise and highly dynamic rotating, tilting and gripping applications. Whether in orientating parts, utilization as a tilting-unit for grippers, or a replacement for standard servomotors with gearbox the ST and SW offer the optimal solution. The compact profile, low weight and various mounting-possibilities as well as the different drive shafts and mechanical configurations open a wide range of applications.

ADVANTAGES

- User programmable
- Speed adjustable
- Acceleration adjustable
- Extremely dynamic
- Long lifetime
- No maintenance cost
- Hygienic linear drive/no pneumatics
- Low energy costs
- Compact design
- Rigid mechanical design
- No oil or gears
- Various sizes and designs
- High protection degree
- Useable in cleanroom environment
- Absolute encoder
- Light weight
- High power density
- Optionally available with electric holding brake

ST 75

TECHNICAL DATA

	ST 75-1	ST 75-2	ST 75-3
Nom. torque (Nm)	0.50	1.00	1.40
Peak torque (Nm)	1.40	2.80	4.20
Max. speed (rpm)	3500	2000	1800
Friction (Nm)	0.5	0.5	0.5
Typical load (kgcm²)	30	70	90
Max. DC voltage (VDC)	800	800	800
Torque of brake (Nm)	10	10	10

	ST 75-1	ST 75-2	ST 75-3
Nom. current (Arms)	0.5	0.6	0.7
Peak current (Arms)	1.6	1.9	2.2
Radial run out (mm)	0.02	0.02	0.02
Axial run out at Ø 75 (mm)	0.02	0.02	0.02
Thermal sensor	PTC	PTC	PTC
Internal inertia (kgcm²)	1	1.1	1.2
Weight (kg)	1.7	2.2	2.7

Weight/inertia given for version with standard encoder and without brake.

ENCODER

Interface	Accuracy
Sick-Stegmann Hiperface	SEK52 ±280" SKS36 ±120" SIL2

Interface	Accuracy
Heidenhain EnDat	ECN413 ±60" 512 counts ECN413 ±20" 2048 counts

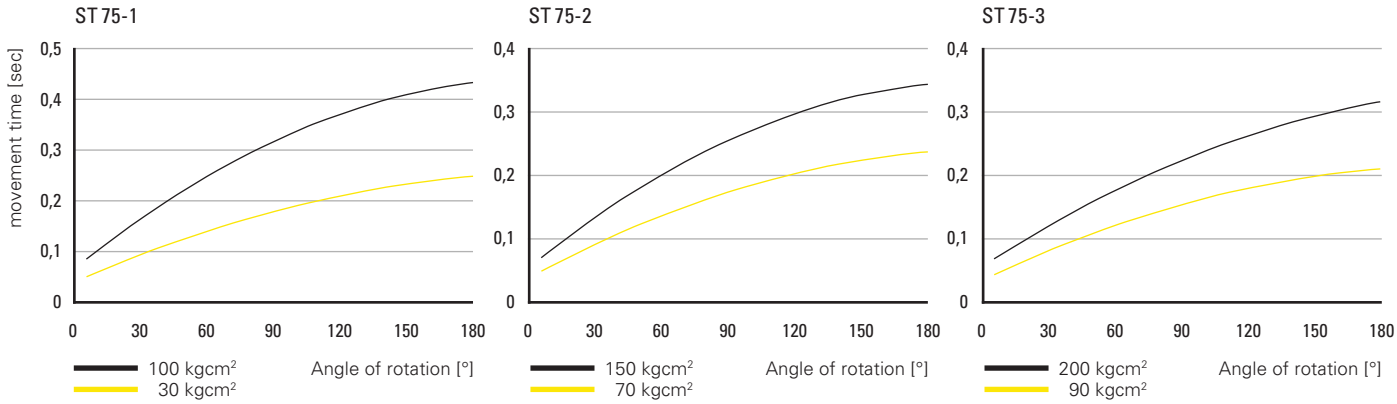
LOAD DATA (dynamic)

	Max. ax. load (kg)	Max. rad. load (kg)	Max. tilting moment (Nm)
ST 75-1	15	20	20
ST 75-2	15	22	25
ST 75-3	15	25	35

LOAD DATA (static)

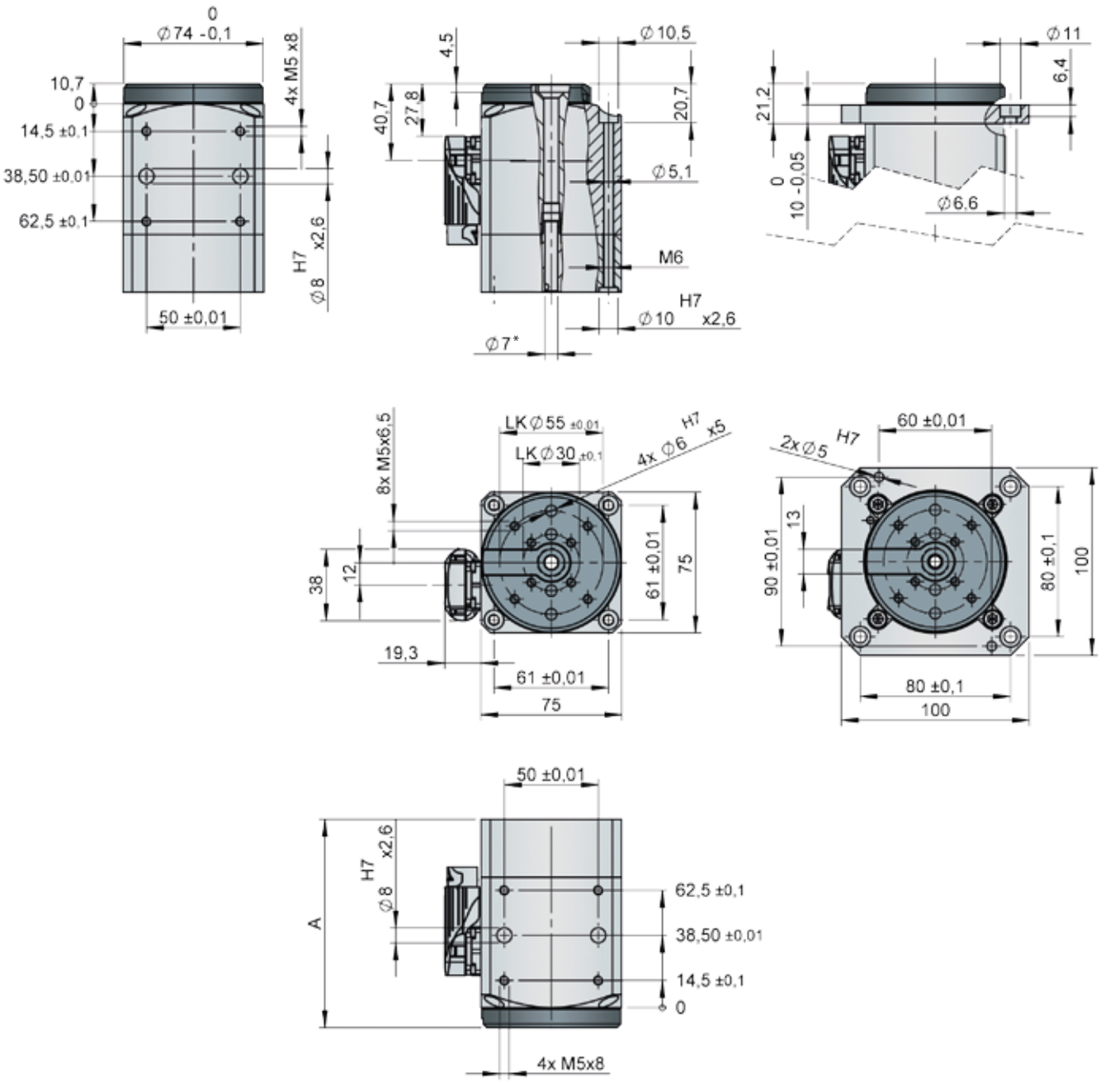
	Max. stat. force ax. (N)	Max. stat. force rad. (N)	Max. stat. moment (Nm)
ST 75-1	500	500	40
ST 75-2	500	650	50
ST 75-3	500	800	70

TIMING DIAGRAM



DIMENSIONS

Option



* only with encoder SEK52"

	A					
	SEK52		**SKS36**		**ECN413**	
		Brake		Brake		Brake
ST0075-1	111	150	123	165	143	181
ST0075-2	131	170	143	185	163	201
ST0075-3	151	190	163	205	183	221

Length depending on encoder and brake options

ST 140

TECHNICAL DATA

	ST140-1	ST140-2
Nom. torque (Nm)	7.70	15.00
Peak torque (Nm)	18.00	36.00
Max. speed (rpm)	1400	1200
Friction (Nm)	3	3
Typical load (kgcm²)	180	360
Max. DC voltage (VDC)	800	800
Torque of brake (Nm)	40	40

	ST140-1	ST140-2
Nom. current (Arms)	1.9	3.5
Peak current (Arms)	5.6	10.5
Radial run out (mm)	0.02	0.02
Axial run out at Ø 140 (mm)	0.02	0.02
Thermal sensor	PTC	PTC
Internal inertia (kgcm²)	52	58
Weight (kg)	6.9	8.6

Weight/inertia given for version with standard encoder and without brake.

ENCODER

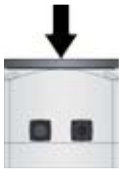
Interface	Accuracy
Sick-Stegmann Hiperface	SEK90 ±120“

Interface	Accuracy
Heidenhain EnDat	ECN113 ±25“ ECN225 ±15

LOAD DATA (dynamic)

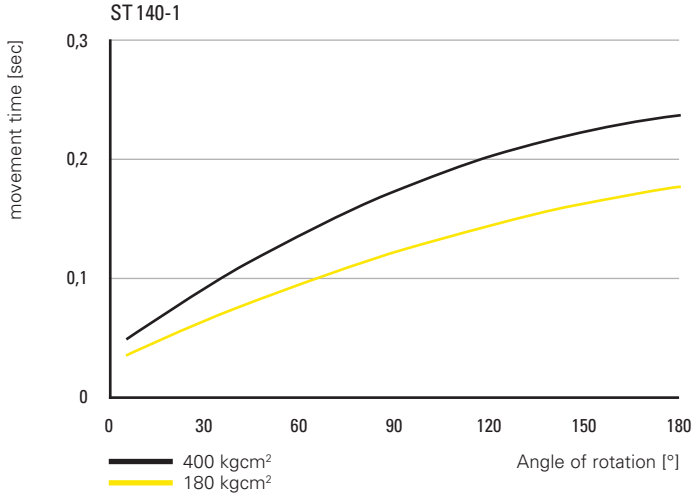
	Max. ax. load (kg)	Max. rad. load (kg)	Max. tilting moment (Nm)
ST 140-1	30	40	65
ST 140-2	30	50	90

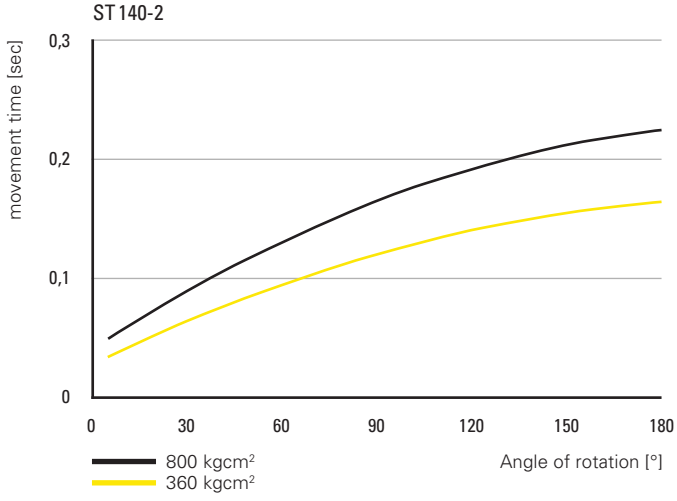
LOAD DATA (static)



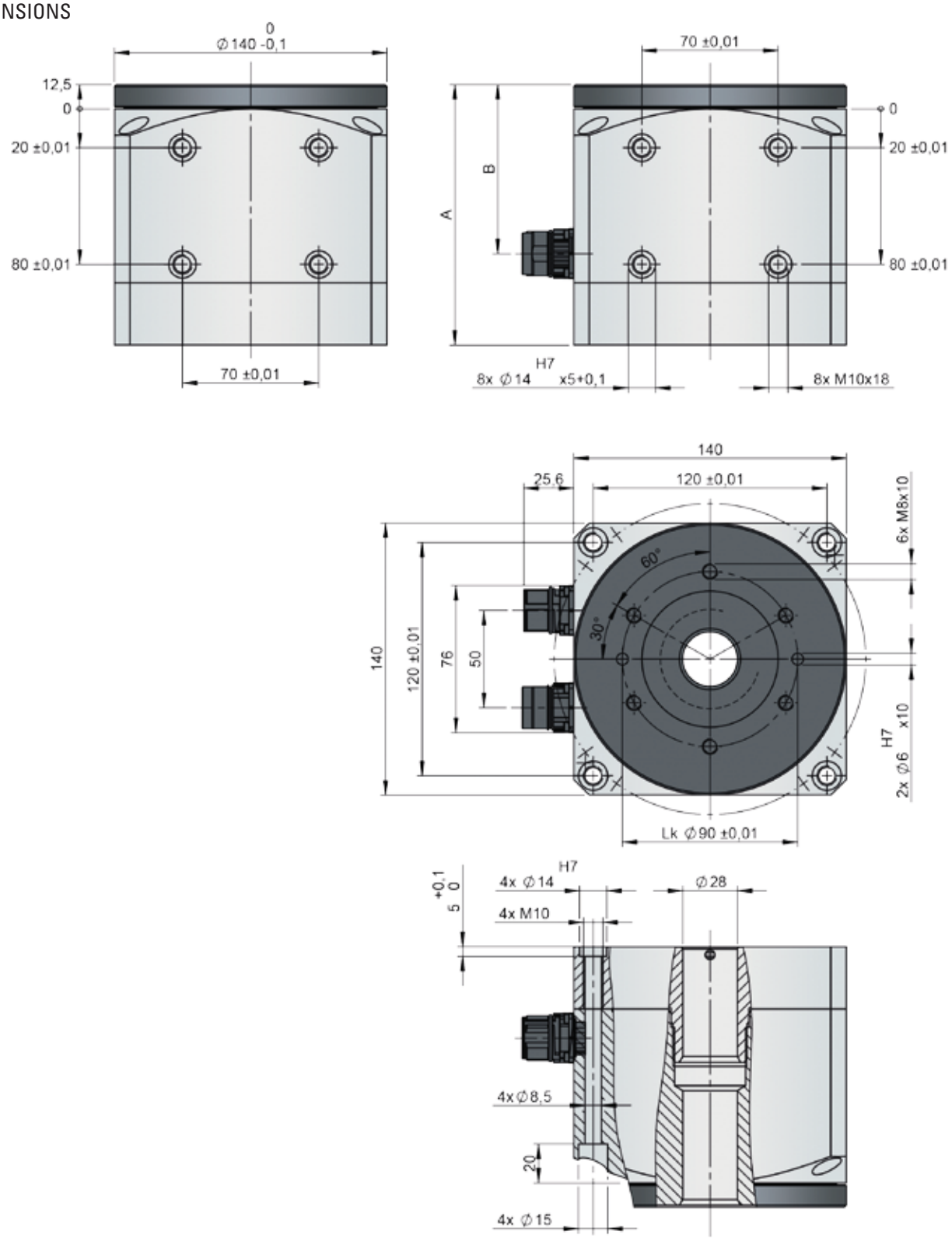
	Max. stat. force ax. (N)	Max. stat. force rad. (N)	Max. stat. moment (Nm)
ST 140-1	800	800	130
ST 140-2	800	1000	130

TIMING DIAGRAM





DIMENSIONS



	A						B
	SEK90		**ECN113**		**ECN225**		
		Brake		Brake		Brake	
ST0140-1	134	189.5	168	224	168	224	87
ST0140-2	161.5	217	195.5	251.5	195.5	251.5	114.5

Length depending on encoder and brake options

SW 140

TECHNICAL DATA

	SW140
Nom. torque (Nm)	15.00
Peak torque (Nm)	36.00
Max. speed (rpm)	1200
Friction (Nm)	3
Typical load (kgcm²)	360
Max. DC Voltage (VDC)	800
Torque of brake (Nm)	40

	SW140
Nom. current (Arms)	3.5
Peak current (Arms)	10.5
Radial run out (mm)	0.02
Axial run out at Ø140 (mm)	0.02
Thermal sensor	PTC
Internal inertia (kgcm²)	55
Weight (kg)	8.2

Weight/inertia given for version with standard encoder and without brake.

ENCODER

Interface	**Accuracy**
Sick-Stegmann Hiperface	SEK90 ±120"

Interface	**Accuracy**
Heidenhain EnDat	ECN113 ±25" ECN225 ±15"

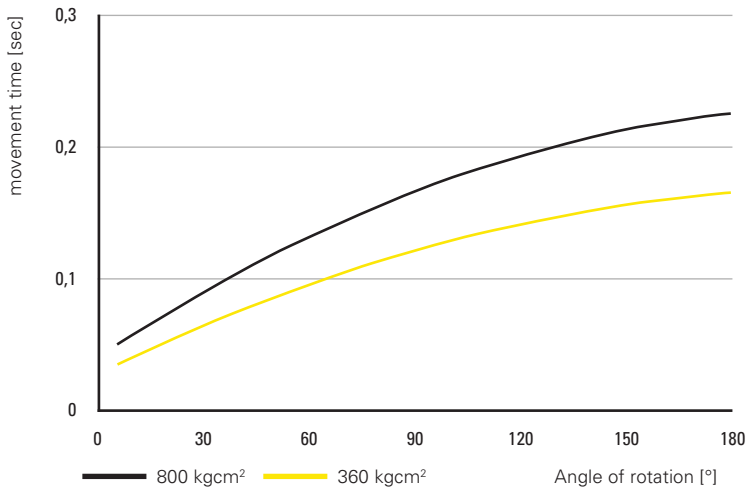
LOAD DATA (dynamic)

	Max. ax. load (kg)	Max. rad. load (kg)	Max. tilting moment (Nm)
SW 140	30	50	90

LOAD DATA (static)

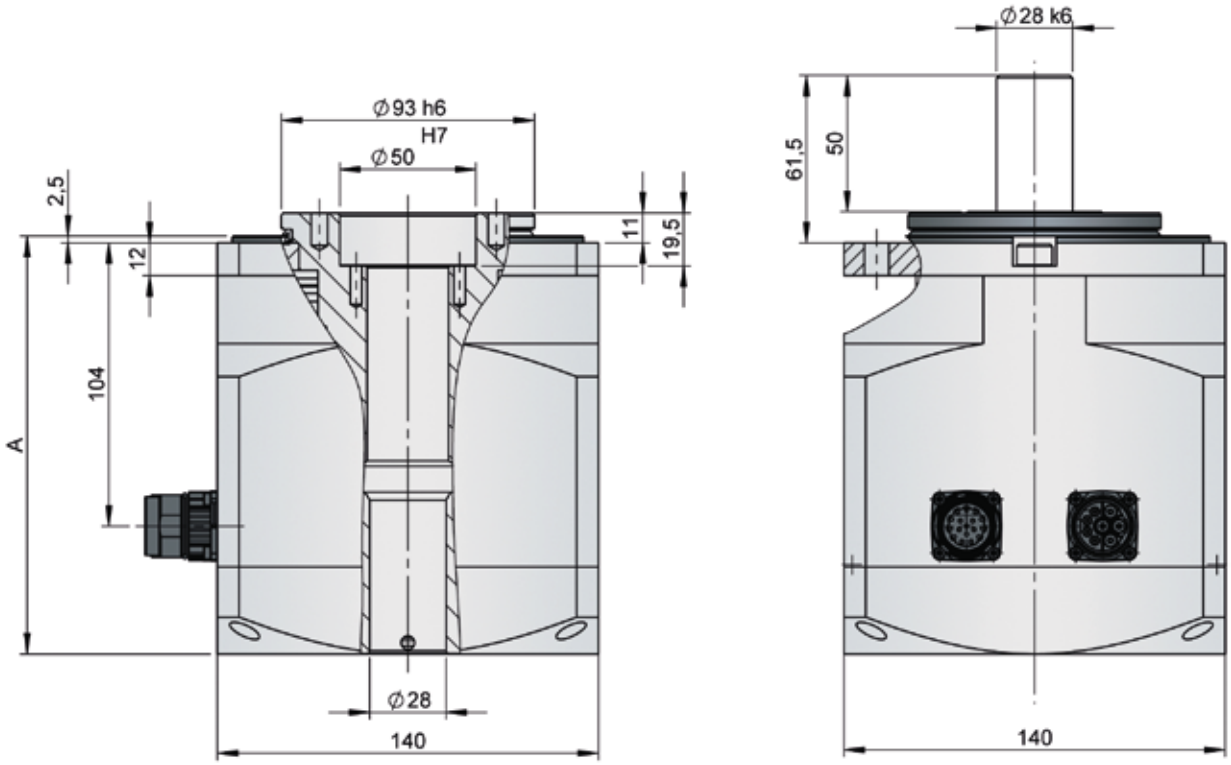
	Max. stat. force ax. (N)	Max. stat. force rad. (N)	Max. stat. moment (Nm)
SW 140	800	1000	180

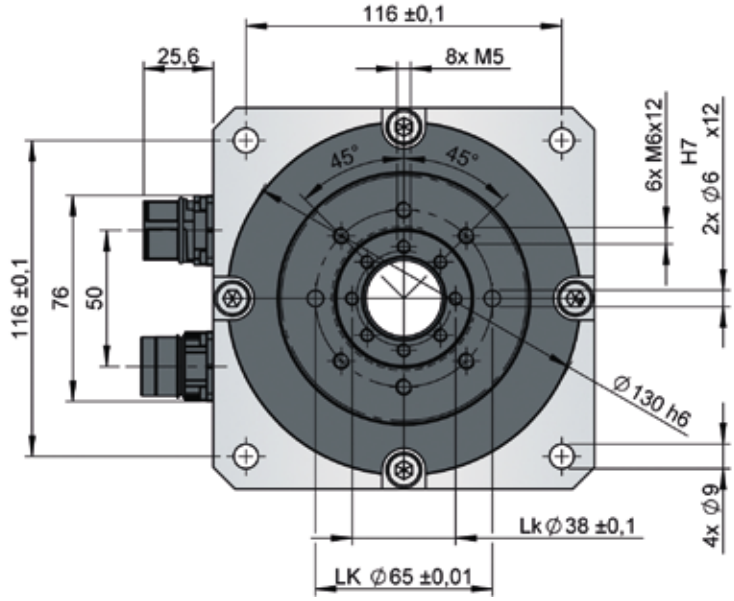
TIMING DIAGRAM



DIMENSIONS

Option





	A					
	SEK90		**ECN113**		**ECN225**	
		Brake		Brake		Brake
SW 0140	153.5	209	187.5	243.5	187.5	243.5

Length depending on encoder and brake options

W.A.S./W.A.S. 2

WEISS APPLICATION SOFTWARE

With its basic functionality for commissioning individual axes, the W.A.S. (WEISS Application Software) allows fast commissioning of all multi-axis systems. Simply connect your Windows PC via Ethernet to set the control parameters.

- All positions and speeds are freely programmable
- Free language selection
- Easy access to axis parameters
- Diagnostic options, remote maintenance
- Inputs and outputs can be forced (e.g. for start-up)
- Software cams can be specified
- Error history

DESIGN AND CONNECTION

- Plug & play
- Pre-parameterised control package
- Perfectly matched components
- Outstanding flexibility with regard to cable length and interfaces

COMMUNICATION

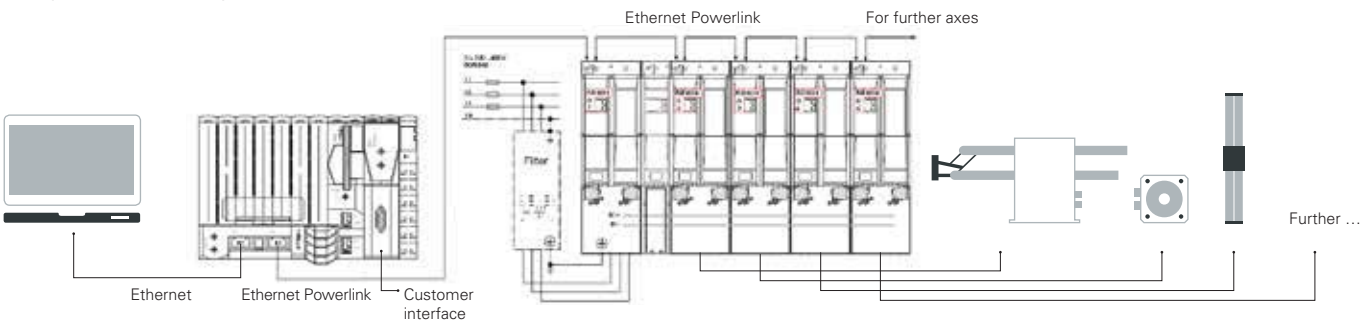
- Digital I/O (24 V inputs and outputs)
- Profibus-DP
- EtherNet/IP (Rockwell)
- PROFINET (W.A.S. 2 only)
- EtherCAT (W.A.S. 2 only)
- More available on request

SAFETY AND SERVICE

- Safe Torque Off
- Safe Motion on request
- Worldwide service / complete UL approval
- Comprehensive safety and monitoring functions

Electrical data	ST 75-1 / ST 75-2 / ST 75-3		ST 140-1 / ST 140-2	SW 140	
Main power voltage	**230 V**	**400 V**	**230 V**	**230 V**	**400 V**
24 V power voltage	1.2 A	1.2 A	1.55 A	1.2 A	1.42 A
Connection power	**0.92 kVA**	**1.54 kVA**	**0.92 kVA**	**0.92 kVA**	**3.5 kVA**
Installation dimensions W x H x D	60 x 257 x 300 mm	60 x 275 x 300 mm	60 x 257 x 300 mm	60 x 257 x 300 mm	70 x 275 x 300 mm

Example of a multi-axis system



MACHINE DESIGN ST/SW

Fax to: +49 (0) 6281 5208-99 or just fill in the form online: www.weiss-international.com

☐ Enquiry ☐ Attachment to order

Dear Customer,
Thank you for your interest in our torque rotating units. To ensure we supply the correct unit for your application, we kindly ask you to answer the following questions:

Model

Version with dial plate
☐ ST 75-1 ☐ ST 75-2 ☐ ST 75-3

☐ ST 140-1 ☐ ST 140-2

Version with shaft
☐ SW 140W

Version with flange
☐ SW 140F

Plug exit

☐ straight (only ST 140/SW 140)
☐ 90° down (only ST 140/SW 140)

Encoder ST 75

☐ Hiperface
Accuracy: ☐ SEK52: ±280“
☐ SKS36: ±120“ SIL 2

☐ EnDat
Accuracy: ☐ ECN413: ±60“ 512 counts
☐ ECN413: ±20“ 2048 counts

Encoder ST 140/SW 140

☐ Hiperface
Accuracy: ☐ SEK90: ±120“

☐ EnDat
Accuracy: ☐ ECN113: ±20“
☐ ECN225: ±10“

Electrical components

☐ **WEISS control system package**
Amplifier, W.A.S. - Software
Cables length: ☐ 5 m ☐ 10 m ☐ 15 m ☐ 20 m ☐ 25 m

Interfaces to the customer PLC
☐ Profibus-DP
☐ Digital I/O
☐ PROFINET (W.A.S. 2 only)
☐ EtherCAT (W.A.S. 2 only)
☐ Ethernet/IP (Rockwell)
☐ _____

Interfaces to W.A.S. – WEISS Application Software
RS232 and Ethernet are included in the scope of delivery
☐ USB-to-RS232 adapter

Supply voltage

☐ 1 or 3 x 208 ... 230 V ~ 50/60 Hz
☐ 3 x 400 ... 480 V ~ 50/60 Hz (mounting size)

Required to specify your ST/SW unit

Inertia of customers payload: _____ kgcm²
When indexing rotating angle: _____ °
required indexing time: _____ s
required dwell time: _____ s

Brake option

☐ Yes ☐ No

For technical enquiries

Company: _____
Name: _____
Country: _____

Desired delivery date: _____
Phone: _____ Fax: _____
E-Mail: _____