# **BUEL®**THE THRUSTER

www.dellnerbubenzer.com





# TRUST THE THRUSTERS BUEL®

#### Content

Page	— BUEL® The Thrusters —————	04 - 05
Page	— BUEL® H ———————————————————————————————————	06 - 19
Page	— BUEL® G	20 - 25
Рабе	— BUFI ® S —	26 - 31



# INNOVATION IS THE DIFFERENCE



# **BUEL®**THE THRUSTERS

BUEL® thrusters have been developed on the basis of decades of experience in power transmission. Highest quality standards in each DELLNER BUBENZER business unit is the basis for excellent reliability and safety. Temperatures deviating from the standard range are possible after consultation.

Our experts will assist you to find your best solution with BUEL®.

### YOUR ADVANTAGES

#### **Unlimited Possibilities**

Buel® thrusters are operated with 3 phase voltages between 220 and 690V with 50 or 60 Hz.

#### Protection Class: IP 65 + IP 67

All electrical components of the BUEL® thrusters are protected from the elements inside the BUEL®.

#### **Space Saving**

BUEL® thrusters require remarkably less space than conventional thrusters.

#### Fast

BUEL® thrusters can reach a set time of less than 100ms.

#### **Pure Power**

BUEL® thrusters have 25% more power than conventional thrusters.

#### **Saves Energy**

BUEL® thrusters fulfill the requirements of DIN EN ISO 50001 Energy Management Systems.

#### Long Life & Less Maintenance

BUEL® thrusters score high for least maintenance cycles.

#### Hydraulic Medium

BUEL® thrusters are filled with a high performance synthetic oil, type Titan CHF 11S (former PENTOSIN CHF 11S).

This oil insures a trouble-free operation in the entire temperature range, indicated above. Biodegradable oil is available as an option.

#### -50°C to Over +75°C

BUEL® thrusters are applicable worldwide, between temperatures of -50°C to over +75°C.



# INNOVATION IS THE DIFFERENCE







The BUEL® Model H is a family member of the DELLNER BUBENZER brand BUEL®. BUEL® thrusters are used for almost all kind of industrial applications. They are setting new industry standards for disk and drum brakes as well as wheel brakes. Our experts will assist you to find your best solution with BUEL®.

More information: www.dellnerbubenzer.com

#### Electrical design

All BUEL® thrusters are operated with 3-phase voltages between 220 V to 690 V at 50 Hz or 60 Hz.

#### Protection class

All electric components of the BUEL® thrusters are located inside, for best protection against environmental influences. BUEL® thrusters are rated IP 65. As an option, protection class IP 67 is possible.

#### Operating modes (BL 35-5 to BL 600-8)

BUEL® thrusters are designed for intermittent duty, independent from the required operating mode of the associated drive. No limitation of the BUEL® thruster duty cycle is required, because after reaching full stroke, (brake released) the motor is switched off. If full stroke is not reached in 4 seconds, the internal thruster motor switches off.

#### Ambient temperature range

BUEL® thrusters are suitable for ambient temperatures between -30°C to +75°C\*. For deviating ambient temperatures, please contact us for support.

#### Protection against moisture

For applications in maritime or tropic environments, the optional use of a small heater to protect the motor windings from moisture is recommended.

#### Heater voltages:

- > 110 to 120 V AC 50 Hz or 60 Hz
- > 220 to 240 V AC 50 Hz or 60 Hz

#### Hydraulic medium

BUEL® Model H thrusters are filled with a high performance synthetic oil, type Titan CHF 11S (former PENTOSIN CHF 11S). This oil insures a trouble-free operation in the entire temperature range, indicated above.

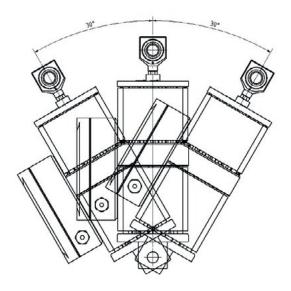
Biodegradable oil is available as an option.

#### **Properties**

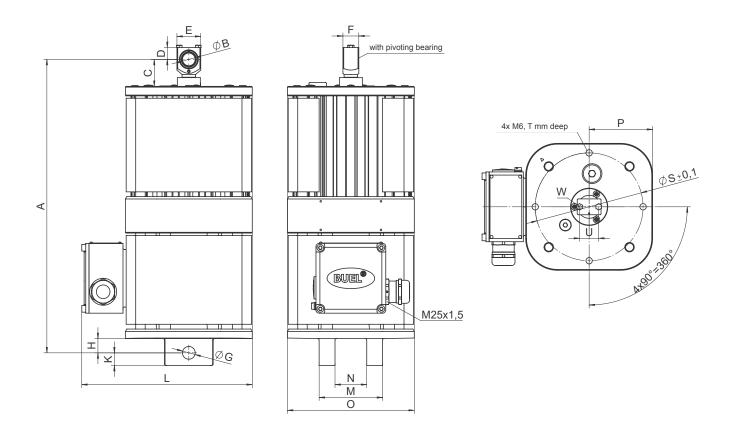
- > New technology
- > Pressure generation by centrifugal gear pump with high mechanical efficiency
- > Fast setting times (~ 150 ms)
- > Energy saving by intermittent duty
- > Fail safe principle
- > Redundant valves
- >Terminal box with control board
- > Automatic pressure drop compensation
- >Low heat generation
- > Huge temperature range in standard execution
- > Little oil volume
- > Little ecologic risk
- > High protection category
- > Infinitely variable re-setting time
- > Swivel head for shear force and misalignment compensation
- > Unique design for the complete model range
- > Low weight, excellent mass/ performance ratio

#### Installation positions

All BUEL® thrusters are preferably operated vertically (piston rod ontop). A deviation of +/- 30° from the vertical axis is permitted. A horizontal installation is possible as an option (please indicate with the order).

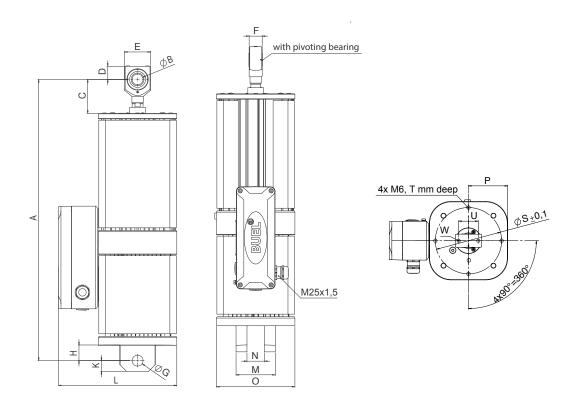


<sup>\*</sup> option W at 400V, 50 Hz.



BL	F max. (N)	max. power (kW) *	max. current consumton (A) *	operating mode S1 and S3 to (c/h)	weight with hydraulic medium (kg)
22-5**	400	0,15	0,4	1000	11
30-5**	450	0,16	0,4	1000	13
35-5	600	0,35	0,6	1000	16
50-6	900	0,45	0,7	1000	16
50-12	900	0,45	0,7	1000	16
80-6	2000	0,60	1,3	1000	21
80-12	2000	0,60	1,3	1000	21
125-6	2500	0,65	1,4	1000	24
125-12	2500	0,65	1,4	1000	24
200-6	3600	0,80	1,5	1000	24
200-12	3600	0,80	1,5	1000	24
300-6	5000	0,90	1,6	900	33
300-12	5000	0,90	1,6	900	33
400-8	5500	1,0	1,7	900	33
400-10	5500	1,0	1,7	900	33
440-8	6500	1,10	1,8	900	33
450-6	7000	1,20	2,0	900	33
450-8	7000	1,20	2,0	900	33
550-8	8000	1,25	2,1	900	33
600-8	8000	1,25	2,1	900	33

<sup>\*</sup>At 400 V, 50 Hz. \*\*At temperature -30°C to +50°C (lower, respectively higher temperatures are possible on request).



BL	F max.	Α	В	С	D	E	F	G	н	к	L	М	N	O,	Р	s	т	U	w
22-5	400 N	286	16	26	15	30	20	16	20	14	215	80	40	160	80	136	12	24	M4
30-5	450 N	370	16	34	15	30	20	16	18	16	215	80	40	160	80	136	12	24	M4
35-5	600 N	370	16	34	15	30	20	16	18	16	250	80	40	160	80	136	10	24	M4
50-6	900 N	435	20	94	25	50	25	20	23	22	250	120	60	160	80	136	12	35	M5
50-12	900 N	515	20	114	25	50	25	20	23	22	250	120	60	160	80	136	12	35	M5
80-6	2000 N	450	20	66	25	50	25	20	23	22	250	120	60	160	80	136	13	35	M5
80-12	2000 N	530	20	86	25	50	25	20	23	22	250	120	60	160	80	136	13	35	M5
125-6	2500 N	645	25	69	30	60	31	25	35	25	250	90	40	160	80	136	13	45	M5
125-12	2500 N	705	25	129	30	60	31	25	35	25	250	90	40	160	80	136	13	45	M5
200-6	3600 N	645	25	69	30	60	31	25	35	25	250	90	40	160	80	136	13	45	M5
200-12	3600 N	705	25	129	30	60	31	25	35	25	250	90	40	160	80	136	13	45	M5
300-6	5000 N	645	25	78	30	60	31	25	35	25	270	90	40	180	90	152	12,5	45	M5
300-12	5000 N	705	25	138	30	60	31	25	35	25	270	90	40	180	90	152	12,5	45	M5
400-8	5500 N	645	25	78	30	60	31	25	35	25	270	90	40	180	90	152	12,5	45	M5
400-10	5500 N	645	25	78	30	60	31	25	35	25	270	90	40	180	90	152	12,5	45	M5
440-8	6500 N	648	25	81	30	60	31	25	35	25	270	90	40	180	90	152	12,5	45	M5
450-6	7000 N	645	25	78	30	60	31	25	35	25	270	90	40	180	90	152	12,5	45	M5
450-8	7000 N	645	25	78	30	60	31	25	35	25	270	90	40	180	90	152	12,5	45	M5
550-8	8000 N	645	25	78	30	60	31	25	35	25	270	90	40	180	90	152	12,5	45	M5
600-8	8000 N	665	25	98	30	60	31	25	35	25	270	90	40	180	90	152	12,5	45	M5

<sup>\*</sup>Data without pressure and temperature monitoring.

BL	BUEL® Thrusters Series
80 (Example)	Type/Size
6 (Example)	Stroke
А	Heater
В	Cover (protection against dust)
С	Increased corrosion protection
D	application in active brakes
ЕВ	Proximity switch
G	Version with proportional valve, normaly closed (SOS application)
Н	Control board with SSR (solid state relais)
1	Protection class IP 67
М	Version with proportional valve, normaly open, (controlled braking system BB900)
N	BOSS® anti snag system
Р	Deviating mounting position
R	Reserve stroke indication
S	Lowering valve
Т	Temperature monitoring
V	Control board with Triac
W	High temperature execution
Х	Special external certificates like e.g. UL
Z	Two stage braking action
xxx V, yy Hz	Voltage, frequency



## **OPTION R (RESERVE STROKE INDICATOR BY LED)**

Visual indication for "dropping below minimum permissible reserve stroke", by two LED's located on the terminal box.

The option "reserve stroke indicator by LED" makes it possible to monitor the lower threshold of the reserve stroke.

when the brake is set. When going below this threshold, the LED indicator changes from green light to red light. The LED's are extremely bright. An indication even in direct sunlight is ensured (possible option for BL 125 and up).

### CERTIFICATE OF COMPLIANCE

Certificate Number Report Reference

UL-CA-2138962-0 E492639-20170427

Date

9-Nov-2021

Issued to:

DELLNER BUBENZER Germany GmbH Friedrichshuttenstr 1 Kirchen-Wehbach

Germany 57548

This is to certify that representative samples of

NMTR7 - Power Circuit and Motor-mounted Apparatus

Certified for Canada

See Addendum Page for Product Designation(s).

Have been investigated by UL in accordance with the

Standard(s) indicated on this Certificate.

Standard(s) for Safety:

**Additional Information:** 

See the UL Online Certifications Directory at

https://iq.ulprospector.com for additional information

This Certificate of Compliance does not provide authorization to apply the UL Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.



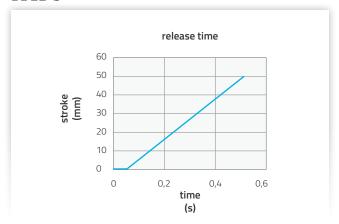
Bruce Mahrenholz, Director North American Certification Program

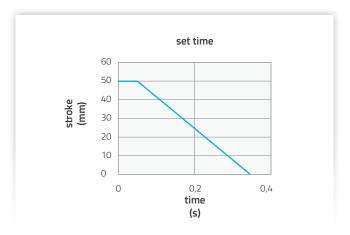
UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at http://ul.com/aboutulilocations/

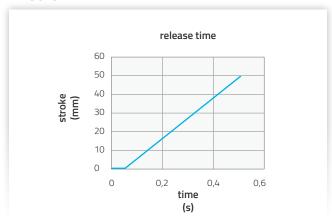


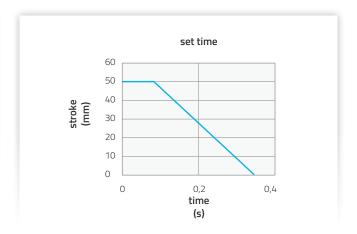
#### BL 22-5



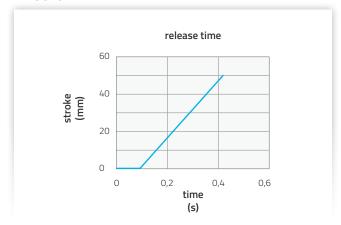


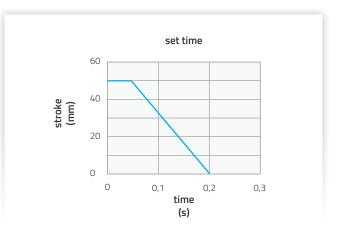
#### BL 30-5





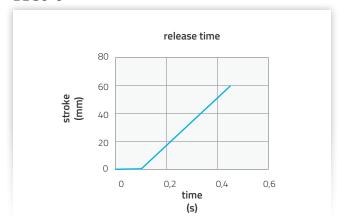
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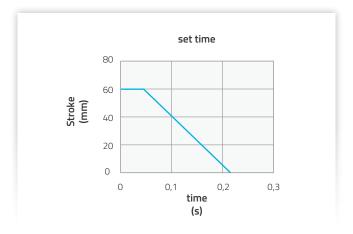




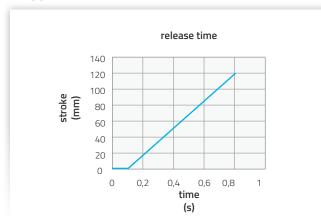
<sup>\*</sup> Weight load (N) according to BUEL® type/ size according to DIN 15430 or based on DIN 15430 Example: BL 80-6 - weight load 800 N (= 80 kp).

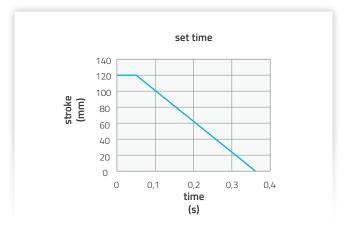
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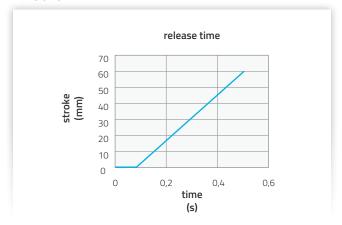


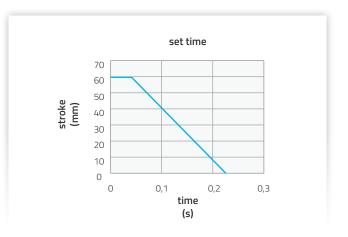
#### BL 50-12





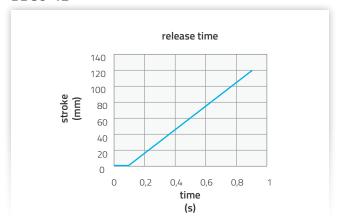
#### BL 80-6

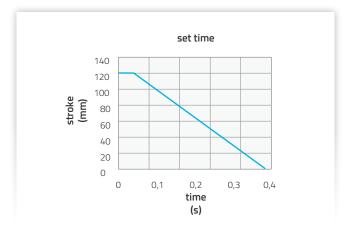




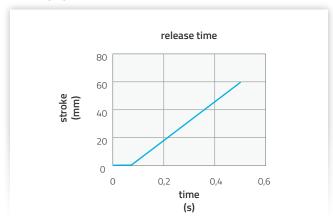
<sup>\*</sup> Weight load (N) according to BUEL® type/ size according to DIN 15430 or based on DIN 15430 Example: BL 80-6 - weight load 800 N (= 80 kp).

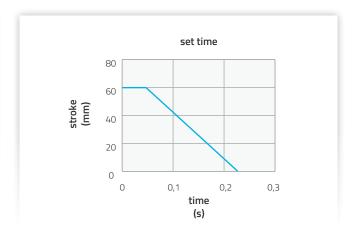
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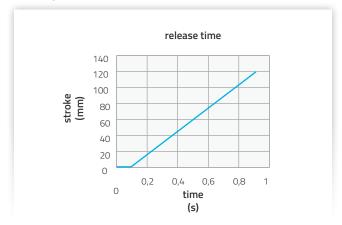


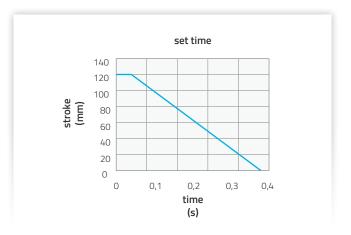
#### BL 125-6





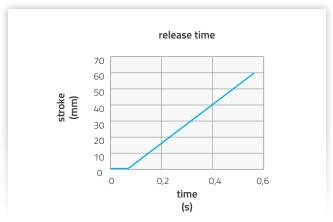
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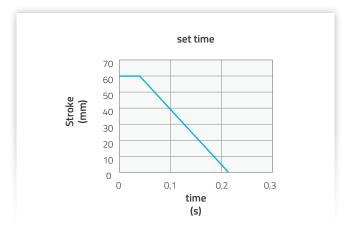




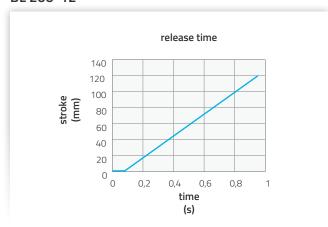
<sup>\*</sup> Weight load (N) according to BUEL® type/ size according to DIN 15430 or based on DIN 15430 Example: BL 80-6 - weight load 800 N (= 80 kp).

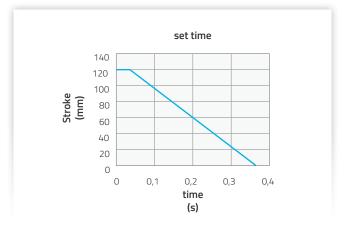
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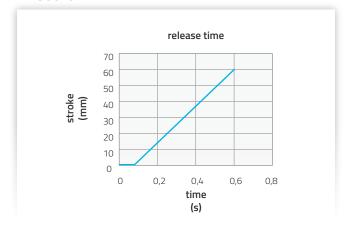


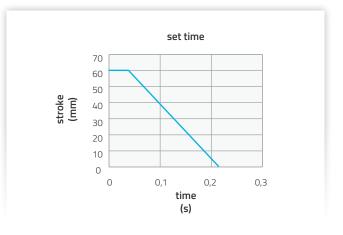
#### BL 200-12





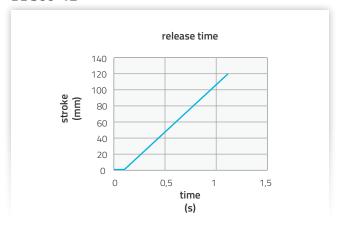
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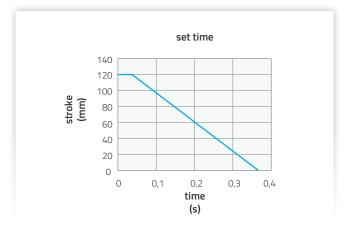




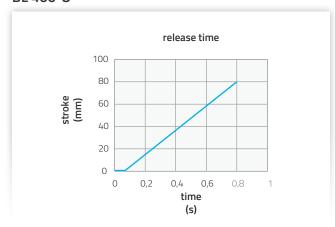
<sup>\*</sup> Weight load (N) according to BUEL® type/ size according to DIN 15430 or based on DIN 15430 Example: BL 80-6 - weight load 800 N (= 80 kp).

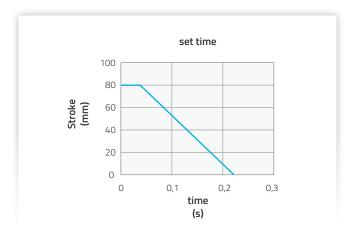
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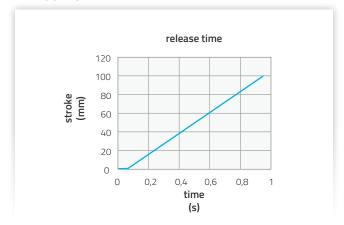


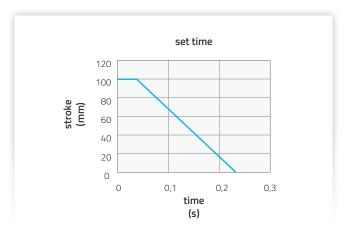
#### BL 400-8





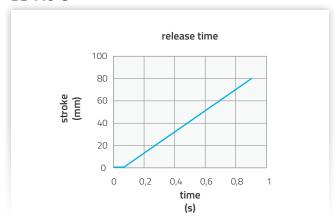
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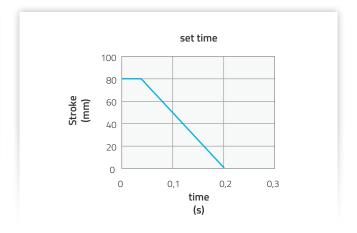




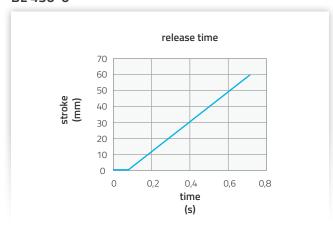
<sup>\*</sup> Weight load (N) according to BUEL® type/ size according to DIN 15430 or based on DIN 15430 Example: BL 80-6 - weight load 800 N (= 80 kp).

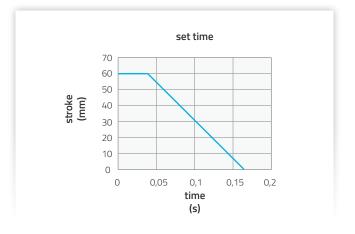
#### BL 440-8



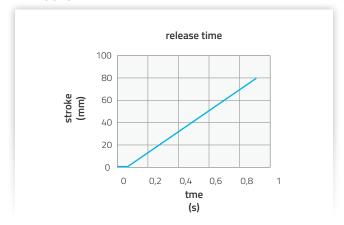


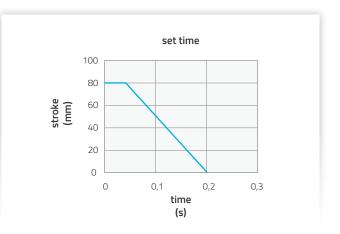
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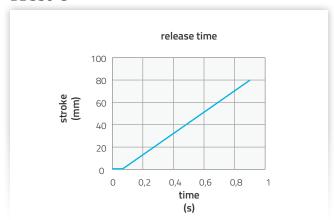
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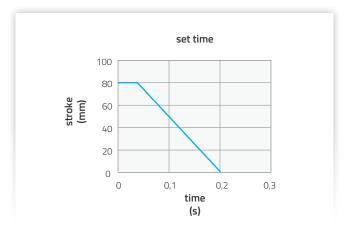




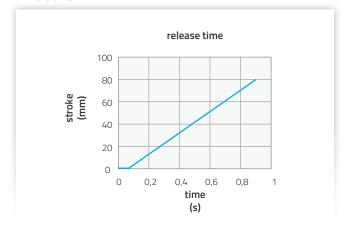
<sup>\*</sup> Weight load (N) according to BUEL® type/ size according to DIN 15430 or based on DIN 15430 Example: BL 80-6 - weight load 800 N (= 80 kp).

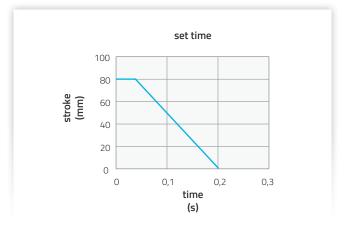
#### BL 550-8





#### BL 600-8





<sup>\*</sup> Weight load (N) according to BUEL® type/ size according to DIN 15430 or based on DIN 15430 Example: BL 80-6 - weight load 800 N (= 80 kp).

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The BUEL® Model G is a family member of the DELLNER BUBENZER brand BUEL®. It is a compact thruster to feed active or passive hydraulic brakes and emergency brakes. It is also suitable for small capacity hydraulic cylinders. Operational pressure can be up to 250 bar. Our experts will assist you to find your best solution with BUEL®.

More information: www.dellnerbubenzer.com

#### Electrical design

All BUEL® thrusters are operated with 3-phase voltages between 220 V to 690 V at 50 Hz or 60 Hz.

#### Protection class

All electric components of the BUEL® thrusters are located inside, for best protection against environ-mental influences. BUEL® thrusters are rated IP 65.

Protection class IP 67 is possible as an option.

#### Operating modes

BUEL® thrusters are designed for intermittent duty, independent from the required operating mode of the associated drive. No limitation of the BUEL® thruster duty cycle is required, because after reaching full pressure, (brake released) the motor is switched off. If full pressure is not reached in 4 seconds, the internal thruster motor switches off.

#### Ambient temperature range

BUEL® thrusters are suitable for ambient temperatures between -30°C to +75°C\*. For deviating ambient temperatures, please contact us for support.

#### Protection against moisture

For applications in maritime or tropic environments, the optional use of a small heater to protect the motor windings from moisture is recommended.

#### Heater voltages:

- > 110 to 120 V AC 50 Hz or 60 Hz
- > 220 to 240 V AC 50 Hz or 60 Hz

#### Hydraulic medium

BUEL® Model G thrusters are operated with a high performance synthethic oil type Titan CHF 11S (former PENTOSIN CHF 11S). This oil insures a trouble-free operation in the entire temperature range, indicated above.

Biodegradable oils can be used as an option.

#### Delivered ready to Install

BUEL® Model G thrusters offer the advantage to be delivered with a brake, ready to install\*. In this case the BUEL® Model G is installed on the brake console, hydraulically connected to the brake, filled with oil and bled.

After electrical connection and brake set-up it is ready to operate.

▶ Alternative the BUEL® Model G is available as separate unit, suitable for the delivered brake. In such case, the hydraulic connection to the brake, oil filling and bleeding must be done whilst installation of the components. In this case the oil filling is not scope of supply.

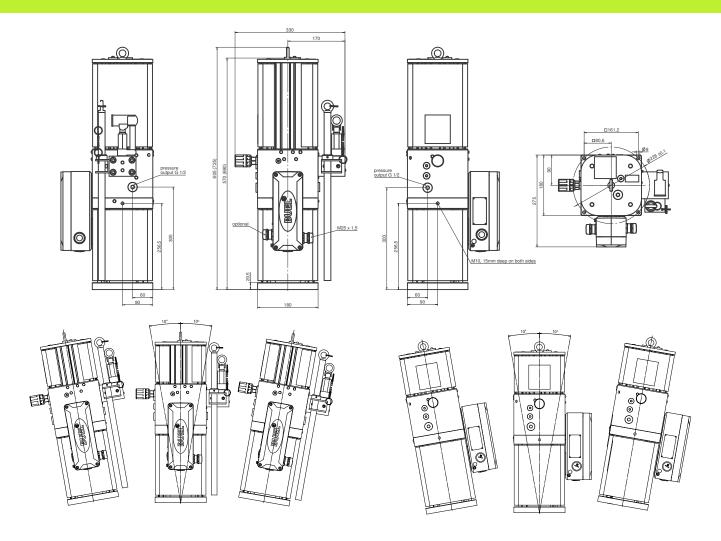
#### Max. Max. current Max. Weight Mode of Max. BUEL® G operation pressure power consumption flow rate with oil . (kW)\*\* (bar) (A)\*\* (I/min.)\*\* (kg) (c/h) 2,20 4,2 180 100 210 210 3.30 5.5 7 180 240 240 4,70 6,5 7 39 180 100L 2,20 4.2 7 180 2101 3 30 5.5 180 240L 240 4,70 6,5 7 180

#### **Properties**

- > Compact design
- > Fail safe principle
- > Variable tank capacity, small filling quantity
- >Use of bio-degradable oils possible
- > Redundant valve system
- > Energy saving by limited duty cycle
- > Automatic compensation of pressure losses, by short time actuation
- > Hydraulic parts protected inside the housing
- > 2 pressure outlets
- > Internal generation of the control voltage for valves and sensors
- > Overload protection by monitoring of the working pressure
- > External manual release incl. "dead-man-handle"
- > Integrated bursting pressure protection
- > Options for additional functions and monitoring

<sup>\*</sup> Option W

<sup>\*\*</sup> Technical data relates to 3 phase 400 V, 50 Hz.



#### **Installation positions:**

BUEL® Model G thrusters have to be operated in vertical position (tank on top). A deviation of +/- 10° from the vertical axis is permitted.

Brake type	No. of cylinder units/ BUEL G®	Type BUEL G®
BSC 50.2, BSC 95.5	2/4	100
BSC 100.5	2/4	210
SF 10	2/4	210
SF 15	2/4	210
SF 24	2	210
	4	210 L
SF 26	2	240
3F 20	4	240 L
05.20, 05.22	2	240 L
SF 30, SF 32	4	240 L
SF 40	2	240 L
3F 4U	4	240 L
SF 50	4	240 L
SFRA5 - 12	2/4	210



**Note**: SFRA brakes have one brake cylinder per brake. The SF 50 brakes have two brake cylinders per brake half, i.e. four per brake. The other brakes have one brake cylinder per brake half, i.e. two per brake".

G	Туре
210	Max. working pressure (bar)
А	Heater
С	Increased corrosion protection
D	Pressure monitoring
Е	Biodegradable oil
I	Protection class IP67
L	Big tank housing
М	Shut-off valve latching, non-latching
N	Level monitoring
0	Optical status control
R	Shut-off valve latching
Т	Temperature monitoring
V	SOS/BOSS® application
W	High temperature execution
X	Special external certificates like e.g. UL
Z	Two stage braking action
xxx V, yy Hz	Voltage, frequency





## **OPTION O (VISUAL CONDITION MONITORING)**

Visual indication for "operating pressure reached". All BUEL® Model G can be equipped with a visual condition monitoring, which makes it possible to monitor the operating pressure.

> red: Operating pressure not reached
> green: Operating pressure reached
The LED's are extremely bright.
An indication even in direct sunlight is ensured.

### CERTIFICATE OF COMPLIANCE

Certificate Number Report Reference

UL-US-2146288-2 E492639-20181005

Date

23-Feb-2022

Issued to:

DELLNER BUBENZER Germany GmbH

Friedrichshuttenstr 1 Kirchen-Wehbach 57548

Germany

This is to certify that representative samples of

NMTR - Power Circuit and Motor-mounted Apparatus

See Addendum Page for Product Designation(s).

Have been investigated by UL in accordance with the

Standard(s) indicated on this Certificate.

Standard(s) for Safety:

UL 508, 18th Ed., Issue Date: 2018-03-30

**Additional Information:** 

See the UL Online Certifications Directory at

https://iq.ulprospector.com for additional information

This Certificate of Compliance does not provide authorization to apply the UL Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz Director North

Bruce Mahrenholz, Director North American Certification Program

UL LLC

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# CERTIFICATE OF COMPLIANCE

 Certificate Number
 UL-US-2146288-2

 Report Reference
 E492639-20181005

Date 23-Feb-2022

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements

Model	Category Description
BUEL G models, Buel G 100, may be followed by A, C, D, E, K, M, N, R, T, V, X or Z, or in any of these combinations	Enclosed Type Electrical Break Thruster
BUEL G models, Buel G 210, may be followed by A, C, D, E, K, M, N, R, T, V, X or Z, or in any of these combinations	Enclosed Type Electrical Break Thruster
BUEL G models, Buel G 240, may be followed by A, C, D, E, K, M, N, R, T, V, X or Z, or in any of these combinations	Enclosed Type Electrical Break Thruster



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The BUEL® Model S is a new family member of the DELLNER BUBENZER brand BUEL®. It is designed for wheel brakes on rail mounted cranes, where high pulling forces for mechanical wheel brakes are required. The patented cylinder system generates pulling forces up to 40.000 N. It has a robust, but also compact design for rough environmental conditions. **Our experts will assist you to find your best solution with BUEL®**.

More information: www.dellnerbubenzer.com

#### Electrical design

All BUEL® Model S units are operated with 3-phase voltages between 220 V to 690 V at 50 Hz or 60 Hz.

#### Protection class

The electric components of the BUEL® Model S thrusters are located inside, for best protection against environmental influences. BUEL® thrusters are rated IP 65.

Protection class IP 67 is available as an option.

#### Operating modes

BUEL® thrusters are designed for intermittent duty, independent from the required operating mode of the associated drive. No limitation of the BUEL® thruster duty cycle is required, because after reaching full stroke, (brake released) the motor is switched off. If full stroke is not reached in 4 seconds, the internal thruster motor switches off.

#### Ambient temperature range

BUEL® Model S thrusters are suitable for ambient temperatures between -30°C to +60°C\*. For deviating ambient temperatures, please contact us for support.

#### Protection against moisture

For applications in maritime or tropic environments, the optional use of a small heater to protect the motor windings from moisture is recommended.

#### Heater voltages:

- > 110 to 120 V AC 50 Hz or 60 Hz
- > 220 to 240 V AC 50 Hz or 60 Hz

#### Hydraulic medium

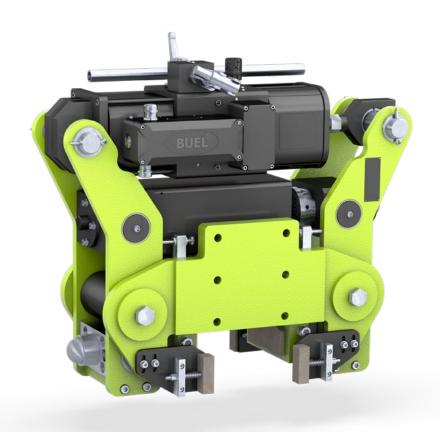
BUEL® Model S thrusters are filled with a high performance synthetic oil, type Titan CHF 11S (former PENTOSIN CHF 11S). This oil insures a trouble-free operation in the entire temperature range, indicated above.

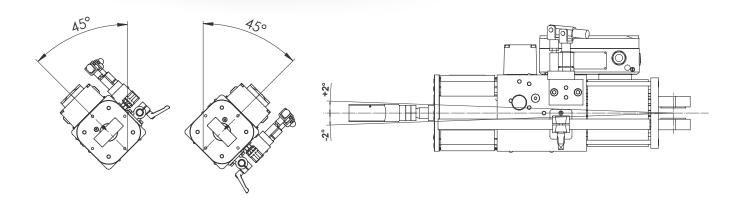
Biodegradable oil is available as an option.

#### **Properties**

- > Pressure generation by centrifugal gear pump
- > Energy saving by intermittent duty
- > Fail safe principle
- > Redundant valves
- >Terminal box with control board
- > Automatic pressure drop compensation
- >Low heat generation
- > Huge temperature range in standard execution
- > Little oil volum
- > Little ecologic risk
- > High protection category
- > Infinitely variable re-setting time
- > Hand pump with shut-off valve
- > Low weight, excellent mass/ performance ratio
- > Limit switch release control off the shelf

<sup>\*</sup> Technical data relates to 3-phase 400 V, 50 Hz.

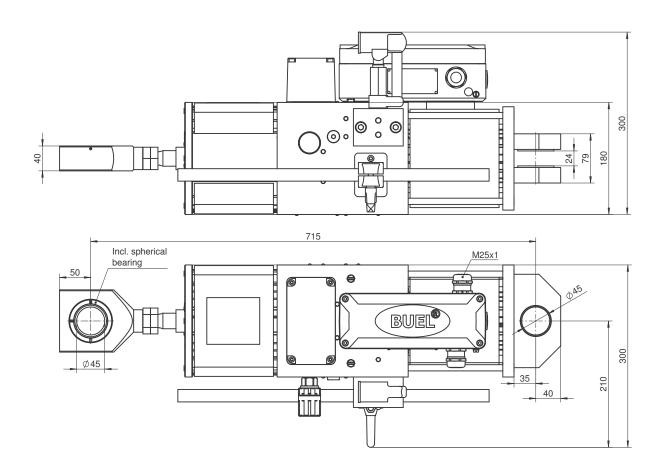




**Installation positions**BUEL® Model S units are preferably operated in horizontal position.
A deviation of +/- 2° from the horizontal plane is permitted.
A rotation of +/- 45° from the normal position is permitted.

Model S	Model S	Reset force (N)	Stroke (mm)	Max. power (KW)	Max. power consumption (A)	Weight with oil (kg)	Mode of operaton (c/h)
3500-28	BRBe 70	35000	28	1,0	1,7	52	120
4000-28	BRBe 90	40000	28	1,1	1,8	52	120

Technical data relates to 3-phase 400 V, 50 Hz.



s	Туре
3500	Max. pulling force in dN
Options	Туре
A	Heater
С	Increased corrosion protection
I	Protection class IP67
М	Shut-off valve latching, non-latching
R	Shut-off valve latching
xxx V, yy Hz	Voltage, frequency



#### **NOTES**

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# **DELLNER BUBENZER**

www.dellnerbubenzer.com



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