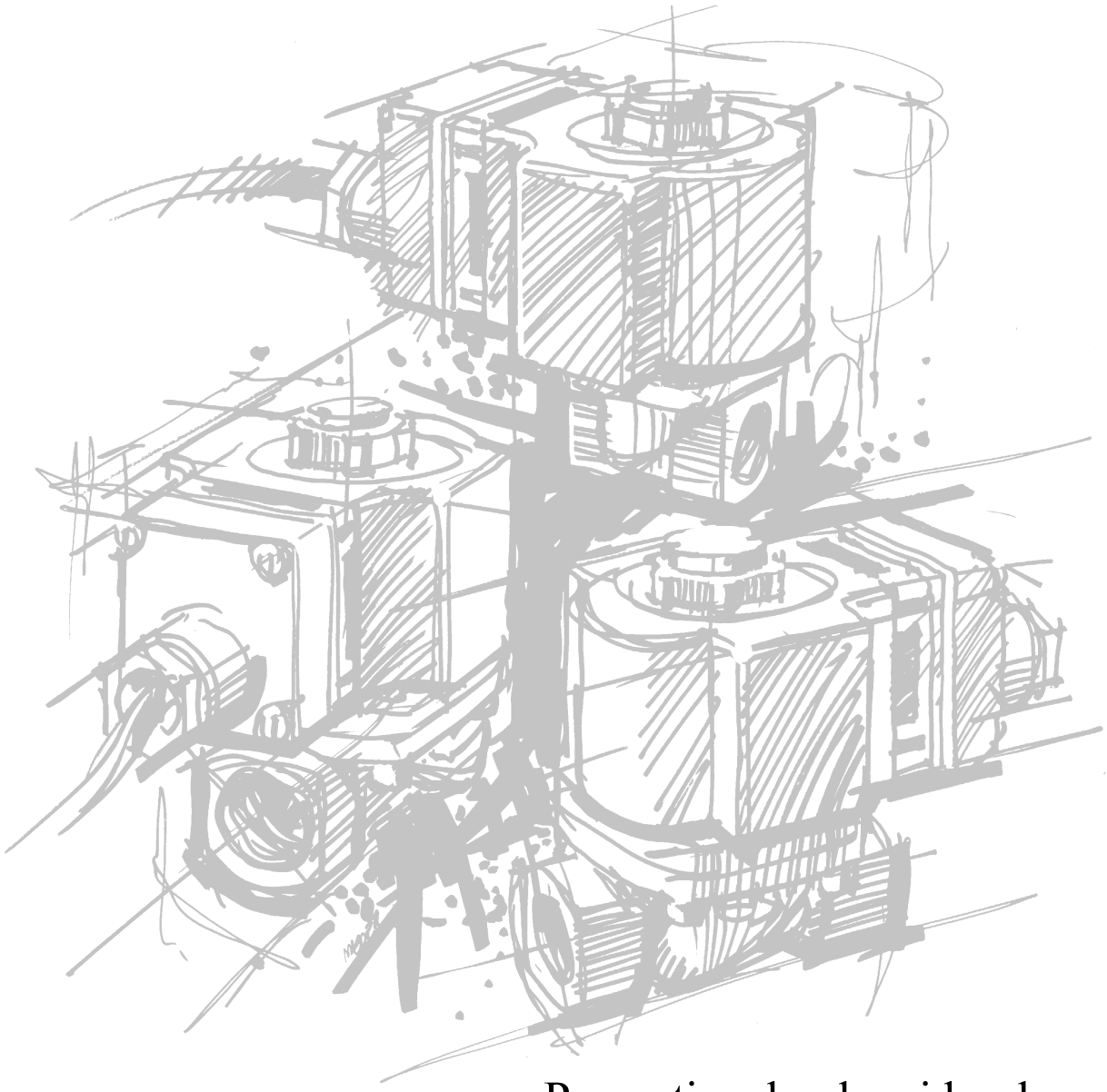
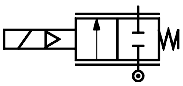
Data sheet



Proportional solenoid valves
2-way servo-operated
Type EV260B

August 2000

DKACV.PD.300.C2.02
520B0626

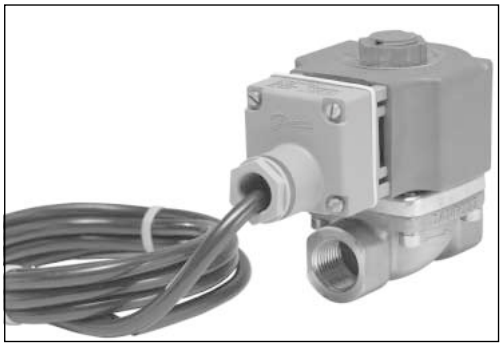


De-energized
closed

Type EV260B
for neutral liquids
DN 6 - 20B

$G\ ^{1}/_{4}$ - $G\ ^{3}/_{4}$

Features

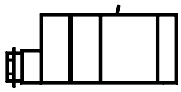


- For stepless flow regulation in industrial plants
- Short reaction time
- Linear characteristic throughout the regulation range
- Closes on power failure (fail-safe function)
- 24 V dc supply voltage
- Standard 4-20 mA or 0-10 V dc pilot signal
- For water, oil and similar neutral liquids
- Flow range for water: 0.5-12.7 m³/h
- Coil enclosure: IP 67
- Also available with NPT thread. Please contact Danfoss.

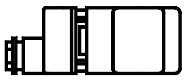
Technical data, valve

Installation	Vertical solenoid system is recommended (see DKACV.PT.600.A)
Pressure range	0.5 to 10 bar
Test pressure	15 bar
Rangeability	Better than 1:20 (5 - 100%)
Ambient temperature	–25 to +50°C
Medium temperature	–10 to +80°C
Viscosity	max. 50 cSt
Materials	Valve body : Brass, W.no. 2.0402 Armature: Stainless steel, W.no. 1.4105 / AISI 430 FR Armature tube: Stainless steel, W.no. 1.4306 / AISI 304 L Spring: Stainless steel, W.no. 1.4568 Orifice: Stainless steel, W.no. 1.4305 / AISI 303 Spindle: Stainless steel, W.no. 1.4105 / AISI 430 FR Valve plate: FKM Seat & guide ring: PTFE Diaphragm: PTFE O-rings: NBR

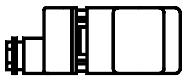
Coil options



Type BK
without signal converter
300 to 600 mA pilot signal



Type BM
with signal converter
0 to 10 V pilot signal



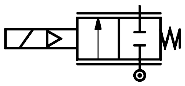
Type BL
with signal converter
4 - 20 mA pilot signal

Technical data, coil

Supply voltage	Without signal converter: 24 V ±10%, full-wave rectified ac voltage With signal converter: 21 to 30 V dc
Pilot signal	Without signal converter: 300 to 600 mA With signal converter: 4 to 20 mA or 0 - 10 V
Coil power	max. 20 W
Insulation of coil windings	400 kΩ for 0-10 V pilot signal. 250 Ω for 4-20 mA pilot signal
Coil resistance	23.5 Ω at an ambient temperature of 20°C
Insulation of coil windings	Class H according to IEC 85
Connection	Without signal converter: Terminal box Pg 13.5 With signal converter: 2 m 3-core cable, Pg 13.5
Coil enclosure, IEC 529	IP 67
Ambient temperature	–25°C to +50°C
Duty rating	Continuous

Type EV260B
for neutral liquids
DN 6 - 20 B

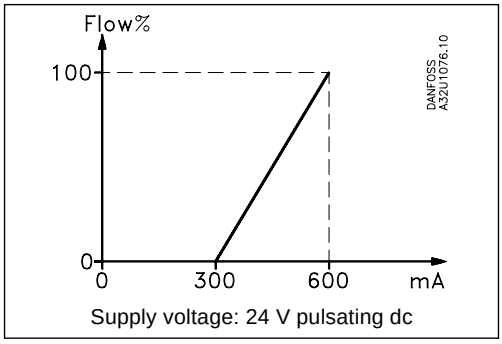
De-energized
closed



Signal flow characteristics

Coil type BK
Without signal converter

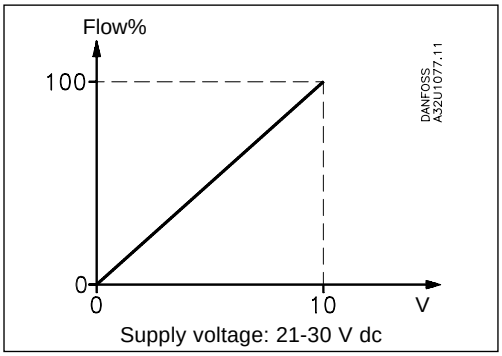
The basic version consists of a valve with a coil for pulsating direct current. The supply voltage of 24 V DC can be established with full-wave rectified alternating current. The valve begins to open at a coil current of approx. 300 mA and is fully open at a coil current of approx. 600 mA. The ratio between coil current and flow between the two outer points is directly proportional.



Supply voltage: 24 V pulsating dc

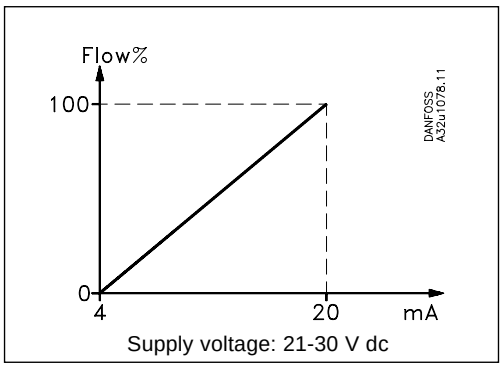
Coil type BM
With signal converter and 0-10 V pilot signal

The ratio between pilot signal and flow is directly proportional throughout the regulation range.



Supply voltage: 21-30 V dc

Coil type BL
With signal converter and 4-20 mA pilot *signal*
The ratio between pilot signal and flow is directly proportional throughout the regulation range.



Supply voltage: 21-30 V dc

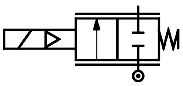
Ordering

Valve

Con-nection ISO 228/1	Seal material	k_v-value [m^3/h]	Media temp. Min. [°C]	Media temp. Max. [°C]	Type designation Main type	Type designation Specification	**Code no. without coil** Standard	Permissible diff. pressure (bar)/Coil type Min.	Max. BK	Max. BM	Max. BL
G $^1/_4$	PTFE	0.8	-10	+80	EV260B 6 B	G 14T NC000	**032U8052**	0.5	10	10	10
G $^3/_8$	PTFE	0.8	-10	+80	EV260B 6 B	G 38T NC000	**032U8053**	0.5	10	10	10
G $^3/_8$	PTFE	1.3	-10	+80	EV260B 10 B	G 38T NC000	**032U8054**	0.5	10	10	10
G $^1/_2$	PTFE	1.3	-10	+80	EV260B 10 B	G 12T NC000	**032U8055**	0.5	10	10	10
G $^1/_2$	PTFE	2.1	-10	+80	EV260B 15 B	G 12T NC000	**032U8056**	0.5	10	10	10
G $^3/_4$	PTFE	5.0	-10	+80	EV260B 20 B	G 34T NC000	**032U8057**	0.5	10	10	10

Coil

Description	Supply voltage	Pilot signal	Specification	**Code no.**
Without signal converter	24 V full wave rectified ac	300 - 600 mA	BK 024 D	**018Z6987**
With signal converter	21 to 30 V dc	0 - 10 V	BM 21 - 30 D	**018Z0290**
		4 - 20 mA	BL 21 - 30 D	**018Z0291**

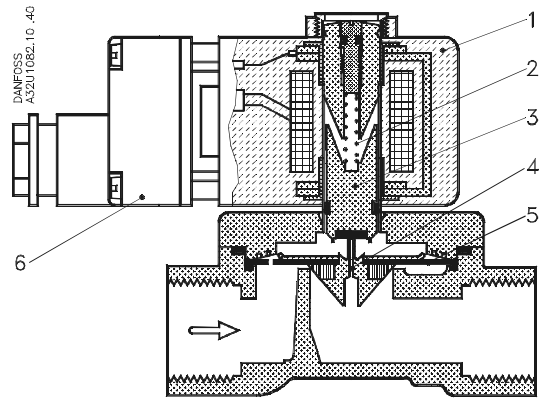


De-energized
closed

Type EV260B
for neutral liquids
DN 6 - 20 B

$G\ ^{1}/_{4}$ - $G\ ^{3}/_{4}$

Function



1. Coil
2. Closing spring
3. Armature
4. Pilot orifice
5. Diaphragm
6. Terminal box

Proportional regulation of the opening and closing of the EV260B valves is achieved through stepless regulation of the coil current and thus of the pulling force of the solenoid coil.

When the coil current is increased, the pulling force of the coil (1) will at a certain point exceed the counteracting spring force of the closing spring (2). The armature (3) moves up, opening the pilot orifice (4) in the diaphragm (5), which due to the servo effect follows the armature's movement.

The valve is fully open when the coil current has reached its maximum value.

Through stepless regulation of the coil current the armature can be placed in any position in the armature tube, and the valve thus set to any position between completely closed and completely open.

The effective coil current range for EV260B proportional valves without signal converter is approx. 300-600 mA.

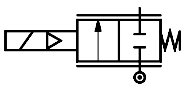
The EV260B valves are also available with a signal converter built in the coil's terminal box (6). The signal converter's output terminals are connected to the solenoid coil.

The signal converter regulates the coil current so that it is proportional to the input signal (pilot signal).

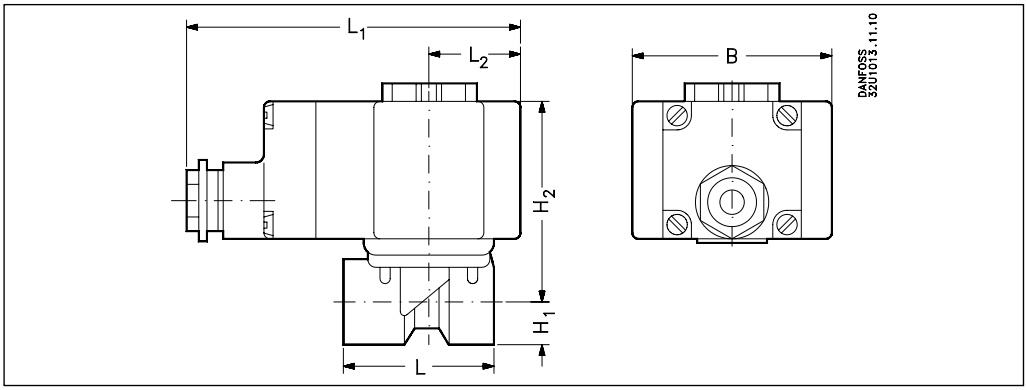
The pilot signal may be a
- 0 - 10 V dc voltage signal
  or a
- 4 - 20 mA current signal

Type EV260B
for neutral liquids
DN 6 - 20B

De-energized
closed



Dimensions and weight

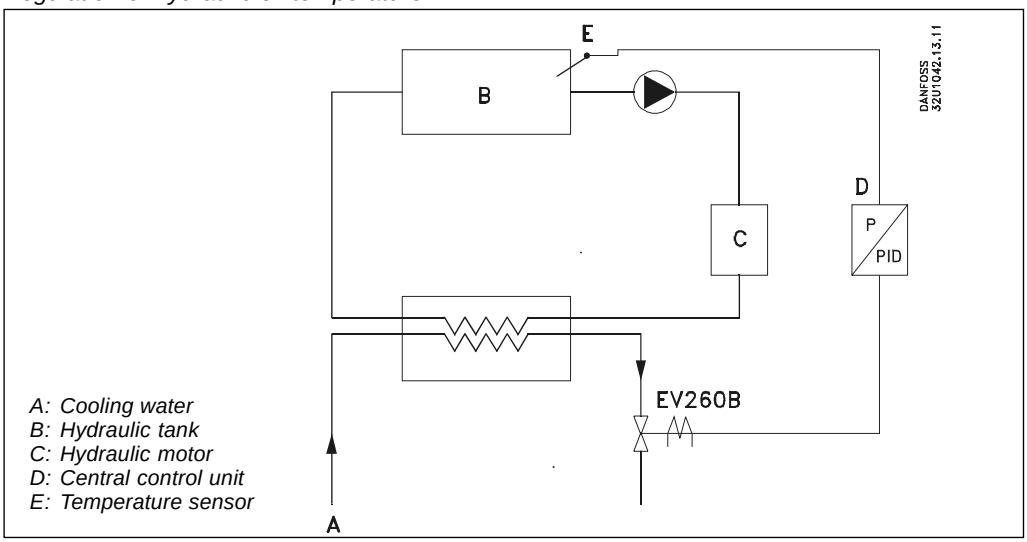


Type	L [mm]	L_1 [mm]	L_2 [mm]	H_1 [mm]	H_2 [mm]	B [mm]	Weight without signal converter [kg]	Weight with signal converter [kg]
EV260B 6 B	62	112 [1])	30	13	71	68	1.02	1.22
EV260B 10 B	62	112 [1])	30	13	71	68	1.02	1.22
EV260B 15 B	81	112 [1])	30	15	74	68	1.17	1.37
EV260B 20 B	98	112 [1])	30	18	79	68	1.71	1.91

[1]) With signal converter the L1 measurement is 128 mm.

Example of application

Regulation of hydraulic oil temperature



A: Cooling water
B: Hydraulic tank
C: Hydraulic motor
D: Central control unit
E: Temperature sensor

To control viscosity and thus friction, it is important to keep a constant oil temperature in hydraulic motor (C). Cooling is therefore often required.

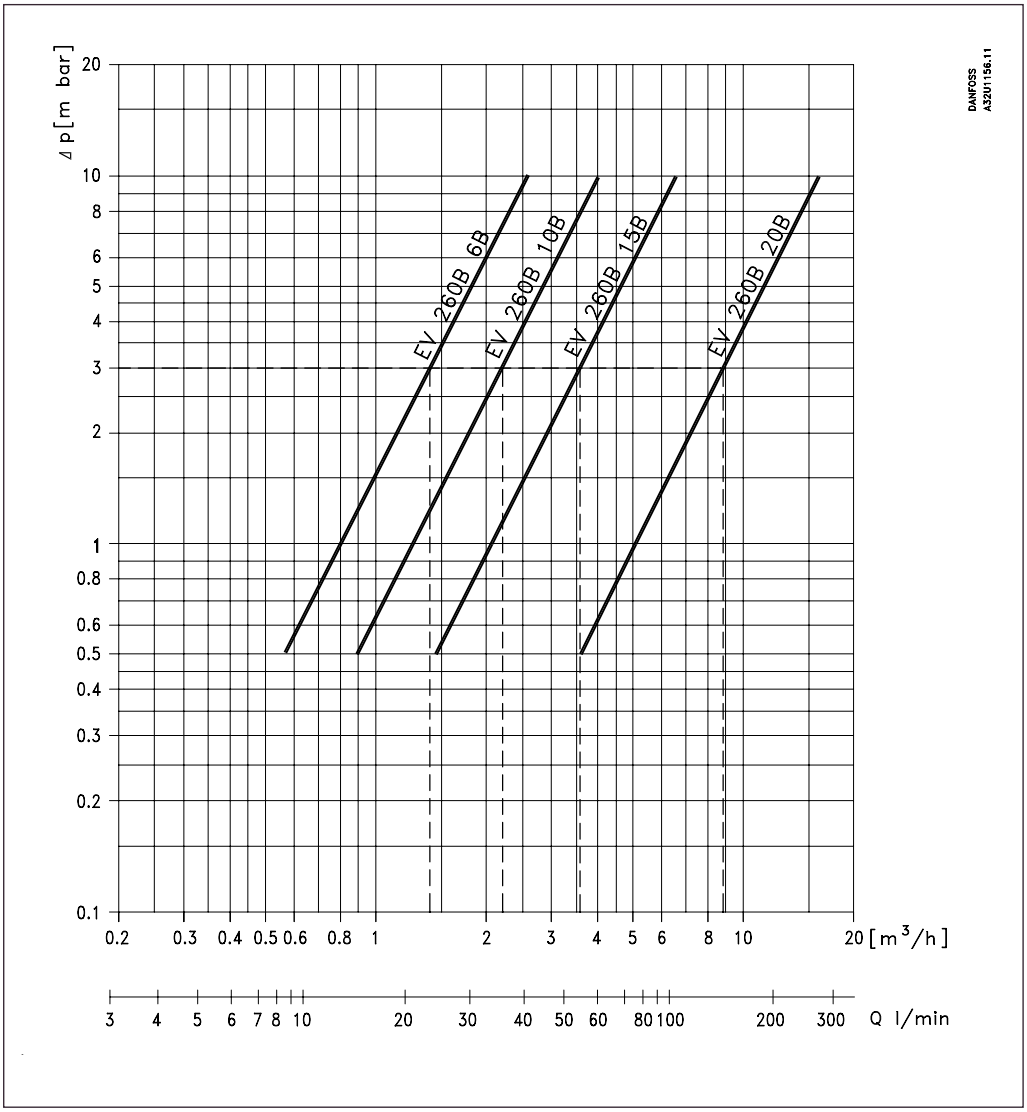
The temperature in the oil tank (B) is measured by the electronic sensor (E). The signal from the sensor is processed by the P/PID regulator (D). The regulator emits an analogue output signal from 4-20 mA or 0-10 V dc.

The signal from the regulator is converted to a specific coil current by the EV260B valve's signal converter. The valve will then let in a specific quantity of cooling water (A) equivalent to the temperature in the oil tank and the load of the machine.

This system has the advantage that the valve closes immediately when the voltage is disconnected, shutting off the water supply without delay and thus saving water.

Type EV260B
for neutral liquids
DN 6 - 20B

Capacity diagram
Water at fully opened valve



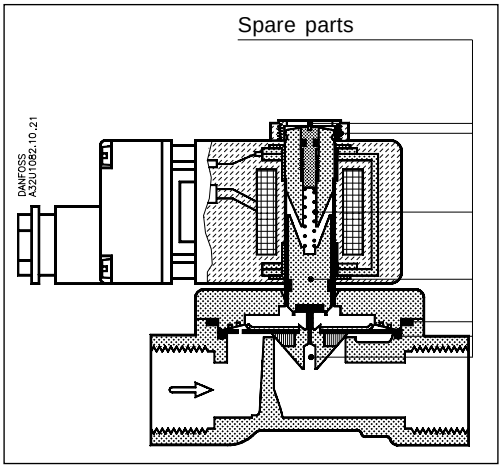
Example

Problem:
What capacity is obtainable from EV260B at a differential pressure of 3 bar?

Results:
EV260B 6B ..... appr. 1.4 m³/h
EV260B 10B ..... appr. 2.2 m³/h
EV260B 15B ..... appr. 3.6 m³/h
EV260B 20B ..... appr. 8.7 m³/h

for proportional solenoid valve
2-way servo-operated
Type EV260B

Spare parts kit



The spare parts kit comprises e.g. a locking button and nut for the coil, armature with valve plate, spring, O-rings and diaphragm.

Type	**Code no.**
EV260B 6 B	**032U8039**
EV260B 10 B	**032U8040**
EV260B 15 B	**032U8041**
EV260B 20 B	**032U8042**

DK-6000 Kolding
Denmark