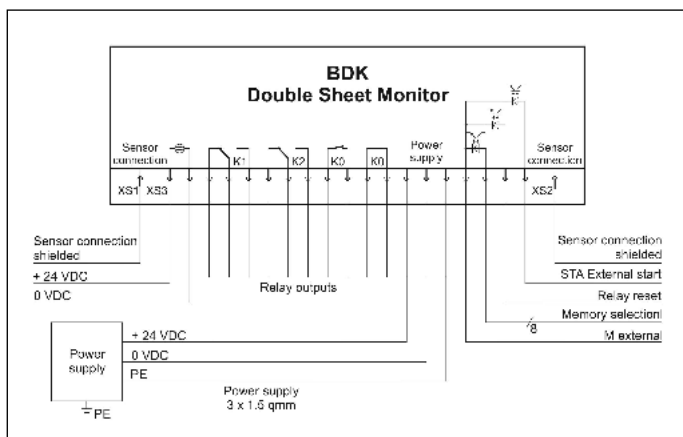
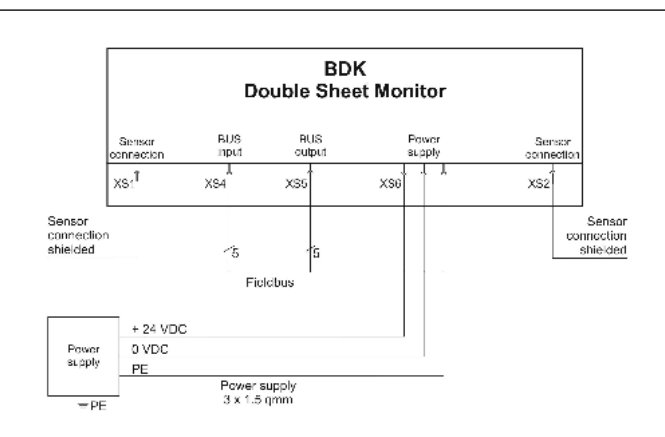


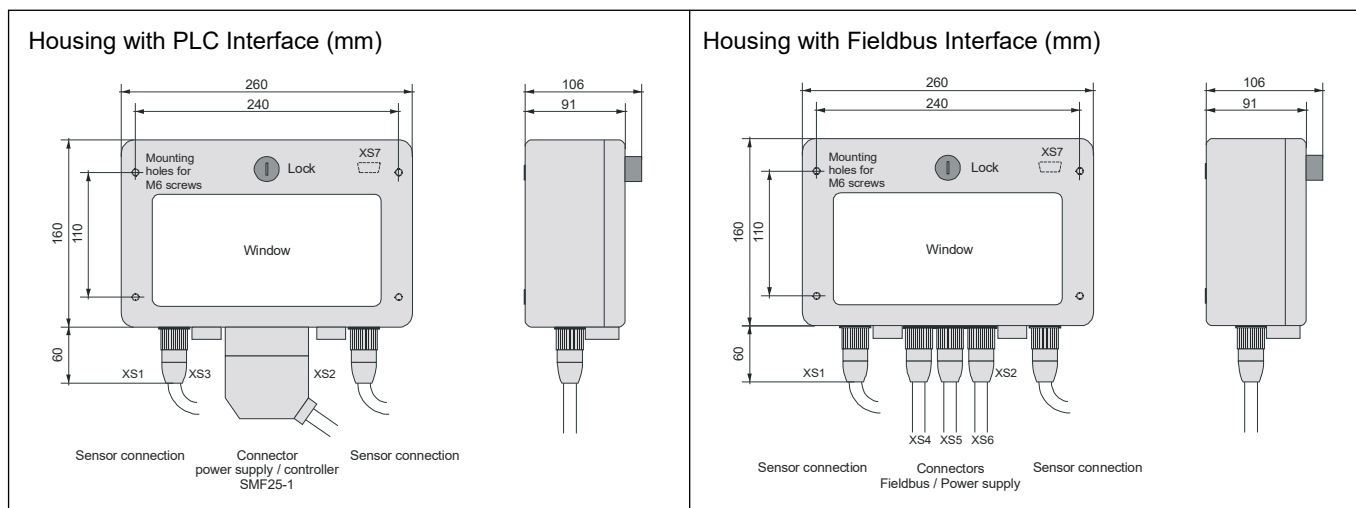
Wiring Diagram BDK with PLC Interface



Wiring Diagram BDK with Fieldbus Interface



11. Housing Dimensions



12. Sheet Metal Thickness Sensors

12.1. DSP, DSPW and BDWF for Single-Surface Contact Measurement

12.1.1. Mounting

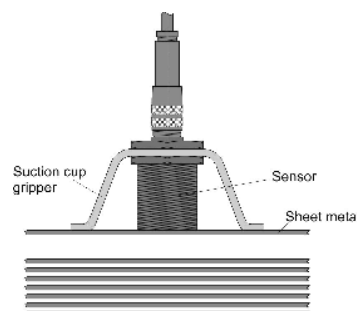
Preferably, the sensor should be built into an appropriately designed suction cup on the gripper.

The suction cup lifts the workpiece from the stack, bringing it near the proximity switch in the sensor. Just before the sensor touches the workpiece, the proximity switch recognises the sheet metal and initiates the measurement.

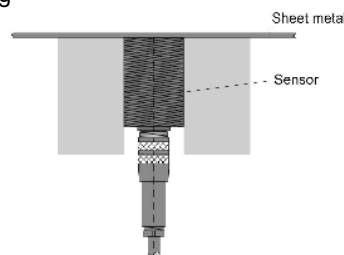
In the case of ferrous metals, the workpiece is held onto the sensor during the brief measuring time (≤ 110 ms). Instead of having a sensor in the suction cup gripper, it can be mounted also single-sided in a measuring station. In such case, however, the workpieces must remain motionless relative to the sensor during measurement. Mounting the sensor directly under and flush with the surface supporting the workpiece avoids accumulation of dirt and filings around the sensor (avoid air gap between sensor and workpiece).

A spring-mounted sensor is a suitable expedient if workpieces which are not flat and/or are very stiff (more than 1.5 mm thick) are to be processed. The workpieces must be large enough to completely cover the sensing face of the sensor during measurement.

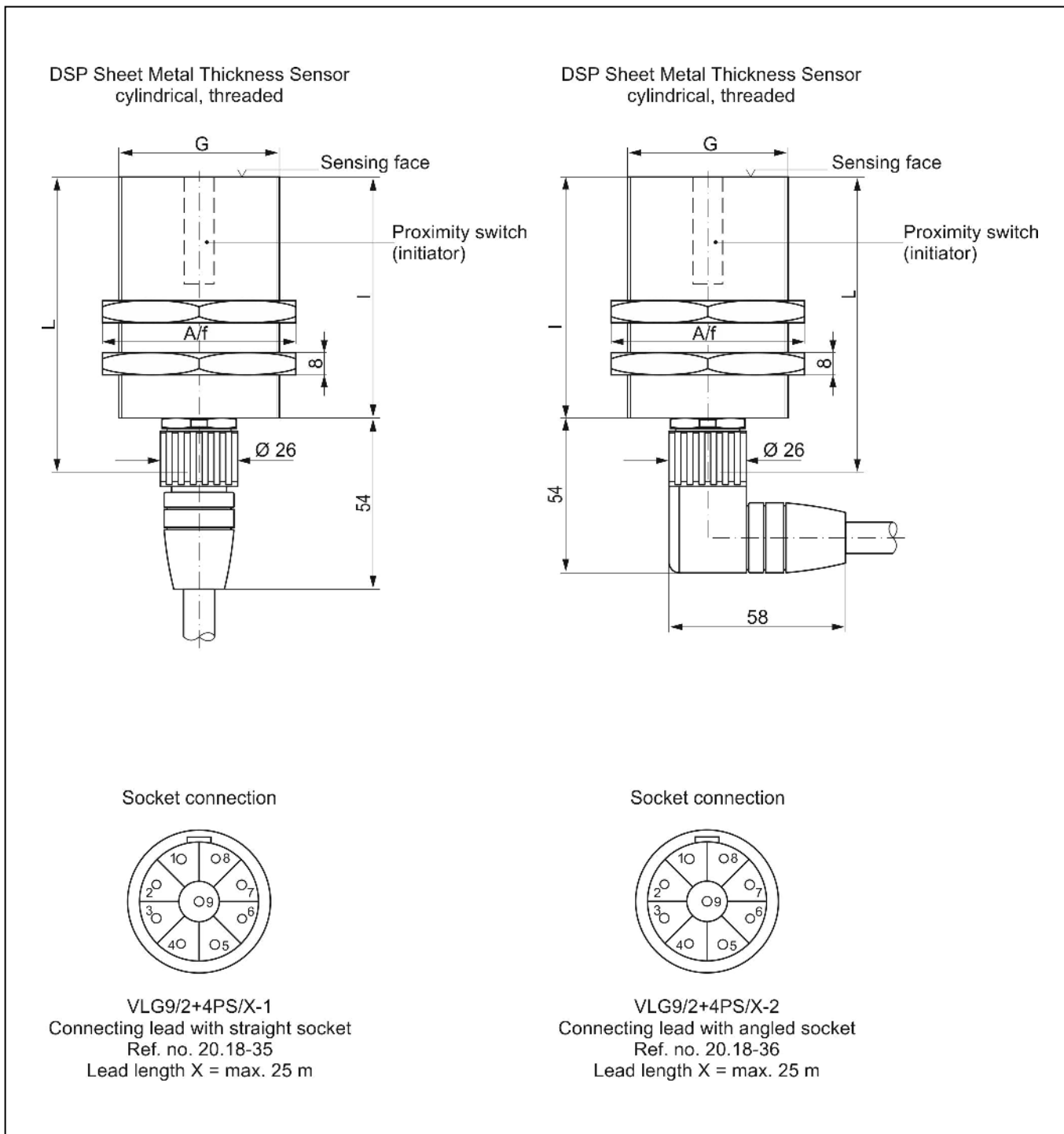
Mounting in the Suction Cup Gripper



Flush Mounting

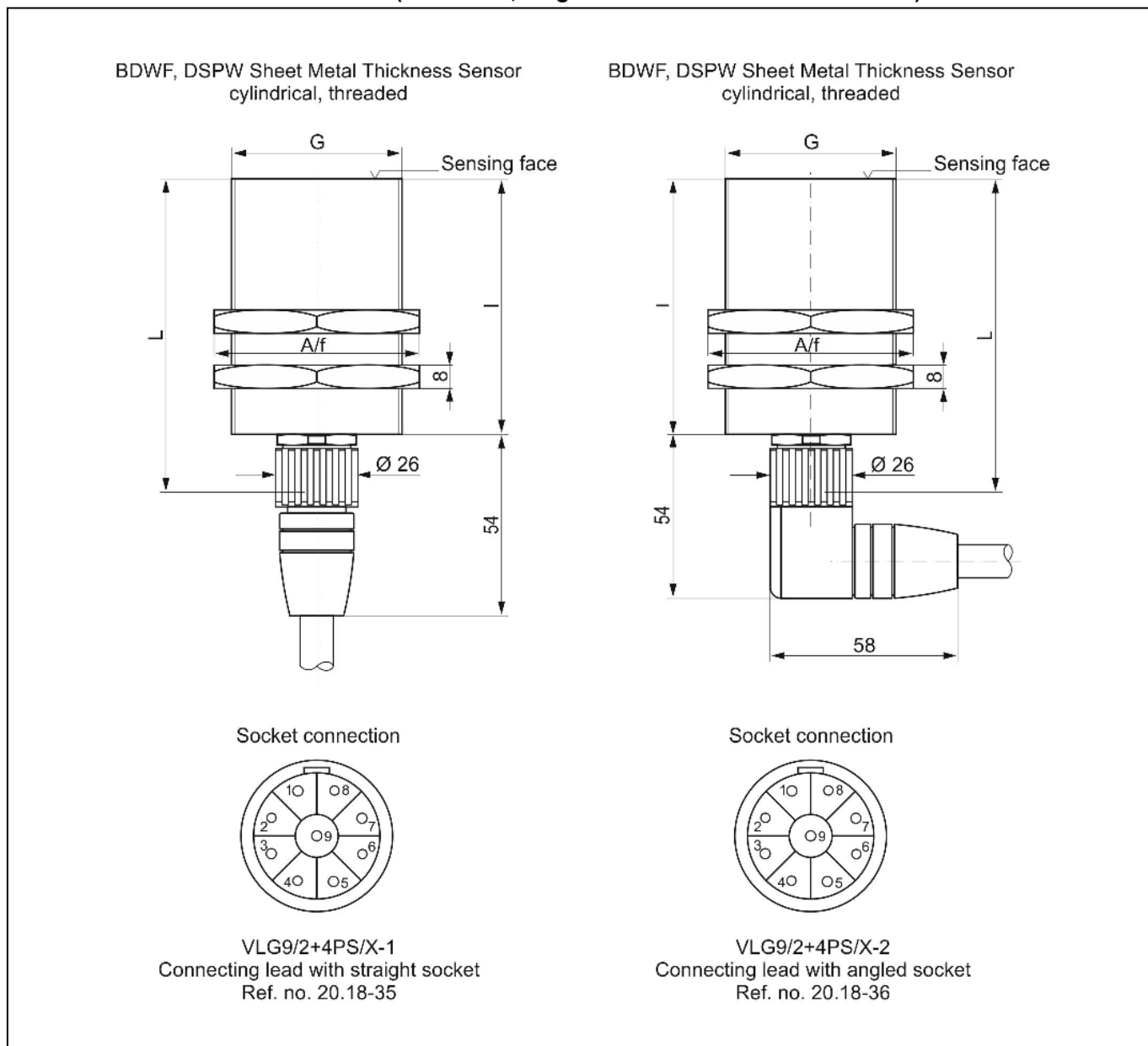


12.1.6. Housing Dimensions DSP (Fe sheets, single-surface contact measurement)



Type	Ref. no.	Meas. Range mm	Fe sheets up to mm	Meas. time ms	L mm	I mm	G Thread	A/f	Weight g
DSP-36sg-1s	13.05-86	0.2 ... 2.0	1.5	< 20	90	65	M36 x 1.5	55	380
DSP-42sg-1s	13.05-87	0.2 ... 3.0	2.5	< 30	100	75	M42 x 1.5	65	910
DSP-54sg-1s	13.05-89	0.2 ... 4.0	3.5	< 50	107	81	M54 x 0.75	65	1200
DSP-75sg-1s	13.05-90	0.2 ... 6.0	5.5	< 110	126	100	M75 x 1.5	90	3010

**12.1.7. Housing Dimensions DSPW (Fe and NE sheets, single-surface contact measurement)
 BDWF (NE sheets, single-surface contact measurement)**



Type	Ref. no.	Meas. range mm	Max. thickn. mm	Meas. time ms	L mm	I mm	G Thread	A/f	D mm	Weight g	Max. lead length m
DSPW-42sg-1s **)	13.05-66	Fe: 0.2 ... 3.5 NE: 0.2 ... 2.5 NE: 0.2 ... 4.0*)	3.0 2.0 3.0	< 70	117	96	M42 x 1.5	55	42	900	25
DSPW-54sg-1s	13.05-67	Fe: 0.2 ... 4.0 NE: 0.2 ... 3.0 NE: 0.2 ... 5.0*)	3.5 2.5 4.0	< 70	117	96	M54 x 0.75	65	54	1200	25
BDWF-m54rg-2s	13.05-73	NE: 0.2 ... 6.0	5.5	< 100	101	81	M54 x 0.75	65	54	650	50

*) The measuring range for non-ferrous (NE) sheets can be extended to **4 mm** or **5 mm** by use of a special adapter.

When using an unsuitable adapter, the accuracy and linearity of the sensor may deteriorate.

We like to provide you our support to work out the best solution.

**) For using the DSPW-42sg-1s sensor, the evaluation device has to be equipped with software version E118 (January 2014) or higher.

12.2. BDWD/S and BDWD/E for Double Surface Measurement

12.2.1. Mounting

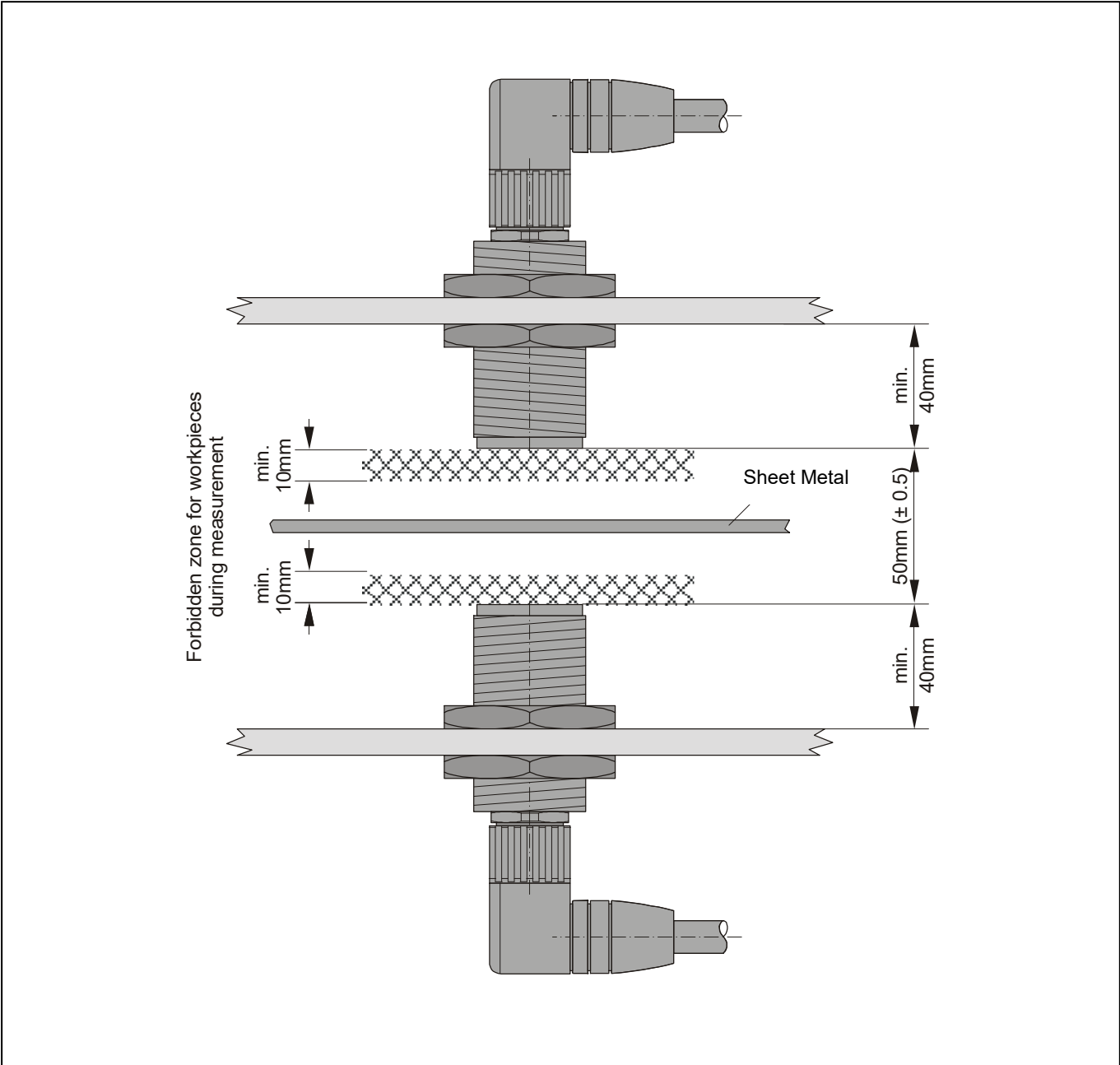
The BDWE/S and BDWD/E sensor pair is to be mounted with a distance of 50 mm between their sensing faces. Mounting must be accomplished so that the workpieces maintain a distance of at least 10 mm from the sensing faces during measurement.

In order to provide maximum measurement accuracy, mounting must be accomplished in such manner that the workpieces will be transported precisely between the transmitter and receiver.

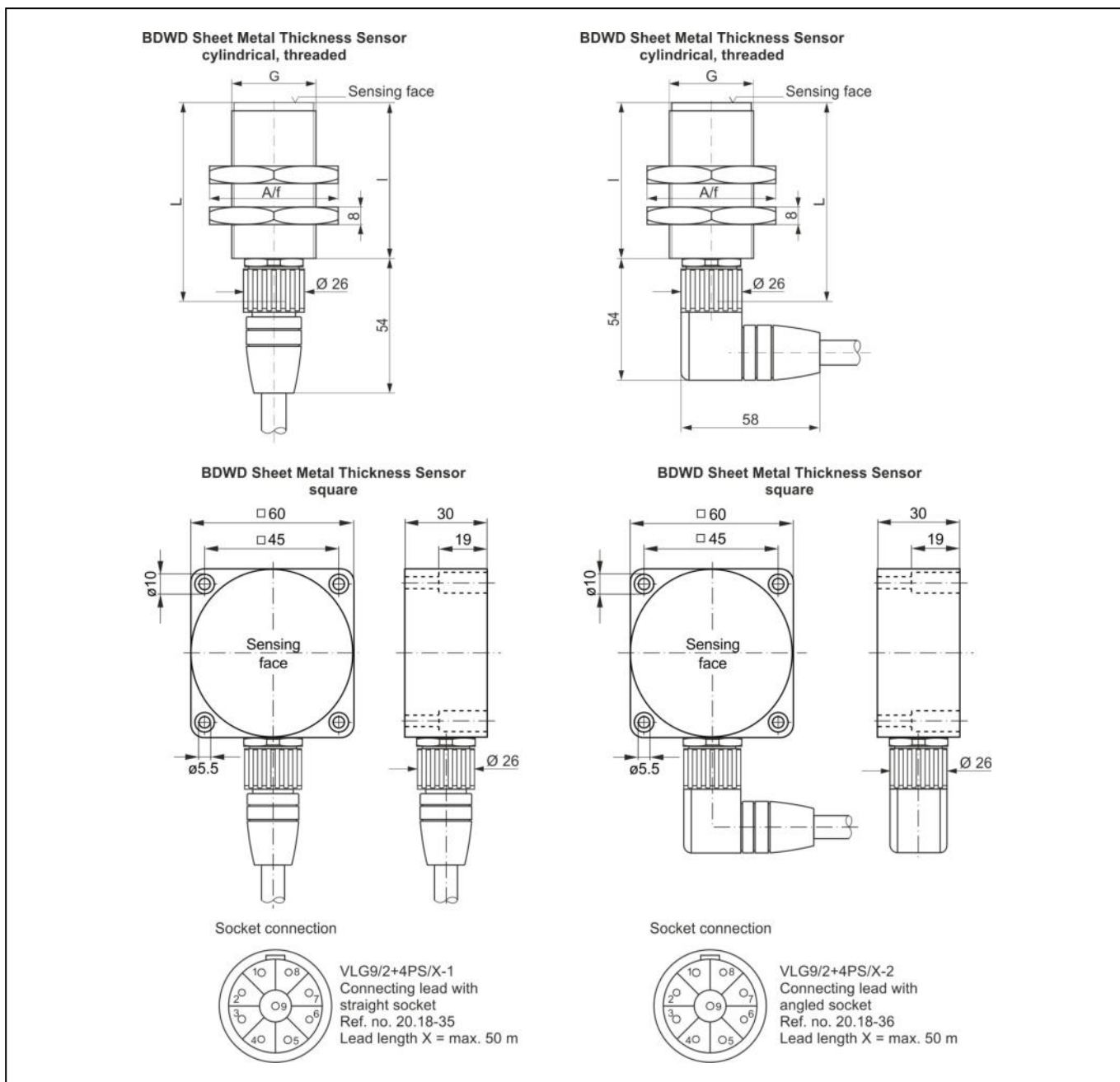
The workpieces must be large enough to exceed at least 90 mm over the edges of the sensing faces during the entire measuring interval; otherwise, especially the measurement of thick ferrous workpieces can lead to wrong results or to a reduced measuring range.

>> <<	Indicates that sensor distance is far too large
> <	Indicates that sensor distance is too large
OK	Indicates that sensor distance is correct
<>	Indicates that sensor distance is too small
<< >>	Indicates that sensor distance is far too small

Visual support for the precise mounting procedure is provided in the sensor distance submenu of the Setup Menu. The LC-display informs the operator about the distance between the transmitter and receiver.



12.2.2. Housing Dimensions BDWD (Fe and NE sheets, double-surface non-contact measurement)



Type	Ref. no.	Meas. range mm		Max. thickness mm		Meas. time ms	L mm	I mm	G Thread	A/f	Weight g
		Ferrous	Non-ferrous	Ferrous	Non-ferrous						
Transmitter BDWD/S-m36rg-1s	13.05-74	0.2 ... 3.5	0.2 ... 20	3.0	6.0	25 ... 200	85	65	M36x1.5	55	250
Receiver BDWD/E-m36rg-1s	13.05-75	0.2 ... 3.5	0.2 ... 20	3.0	6.0	25 ... 200	85	65	M36x1.5	55	250
Transmitter BDWD/S-60aq30-1Y1	13.05-76	0.2 ... 3.5	0.2 ... 20	3.0	6.0	25 ... 200	-	-	-	-	500
Receiver BDWD/E-60aq30-1Y1	13.05-77	0.2 ... 3.5	0.2 ... 20	3.0	6.0	25 ... 200	-	-	-	-	500

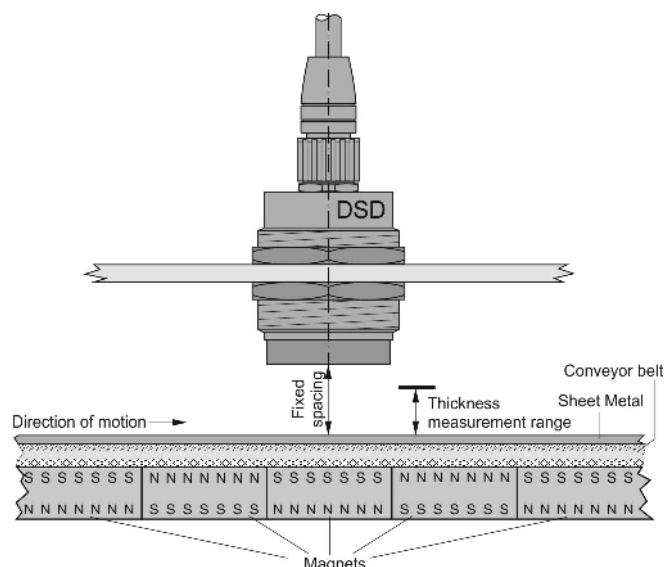
12.3. DSD Sensor for Single-Surface non-contact Measurement

12.3.1. Mounting

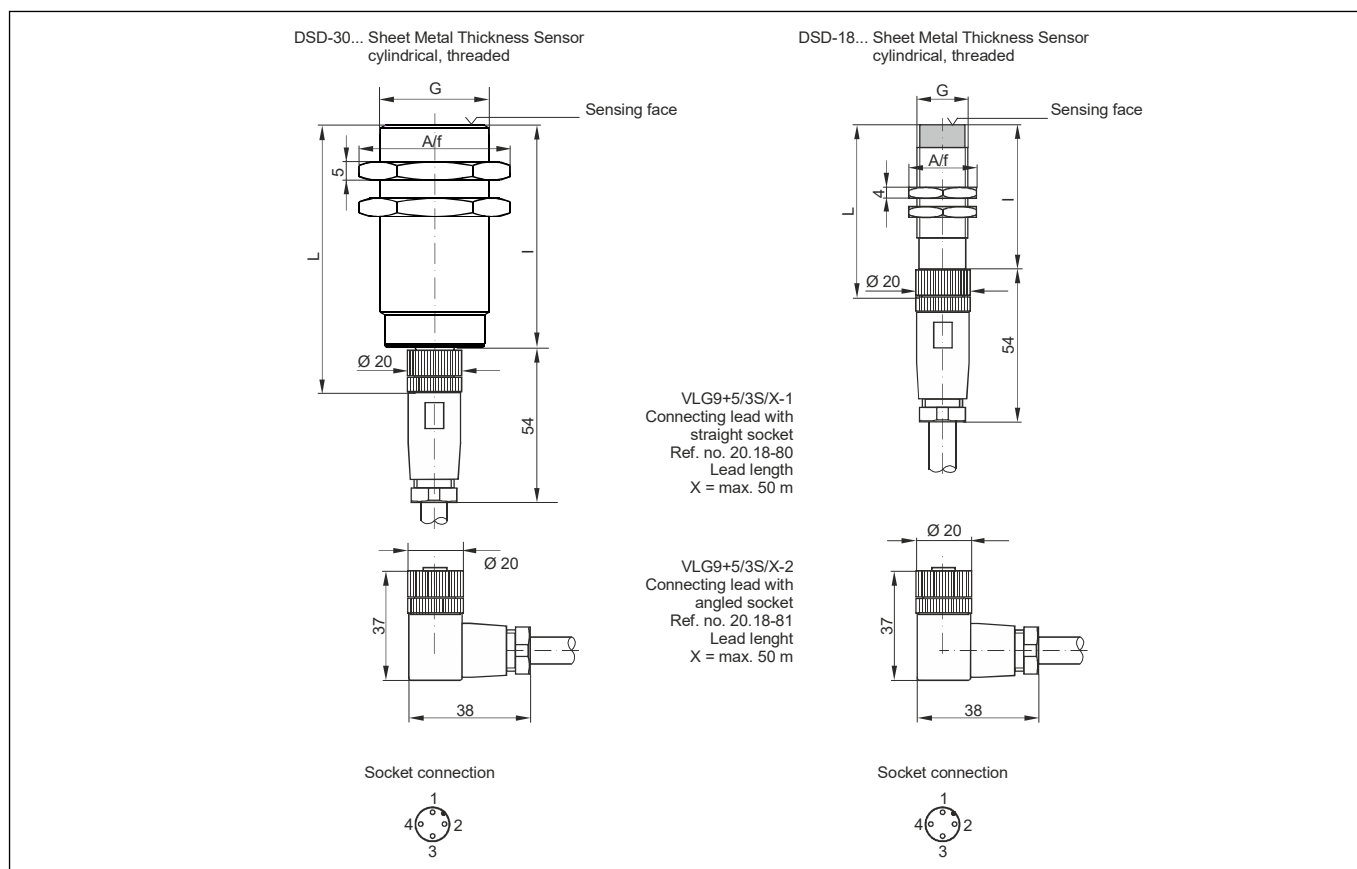
The distance between the sensing face and the surface supporting the workpiece (conveyor belt) must correspond to the distance specified for the sensor to be used. The workpieces must lie on the supporting surface without any air gap.

Strong magnetic fields, resulting from magnets which are used on conveyor belts, may influence the measurements when the workpiece moves along the sensor. This influence can be minimised by mounting the sensor symmetrically to the magnetic poles, and hence to the respective magnetic field.

The workpieces must be large enough to completely cover the sensing face during the entire measuring operation.



12.3.2. Housing Dimensions DSD (Fe sheets, single-surface non-contact measurement)



Type	Ref. no.	Dist. mm	Ferrous materials		Meas. time ms	L mm	I mm	G Thread	A/f	Weight g
			Meas. range mm	Double sheet moni- tor mm						
DSD-18mg 61n0.5/3-1Sd1	13.05-91	8	0.5 ... 6.0 0.5 ... 7.0 *)	0.5 ... 3.0 0.5 ... 3.5 *)	10	61	51	M18x1	24	50
DSD-30mg 74n3/6,5-1Sd1	13.05-94	16	3.0 ... 13 **)	3.0 ... 6.5 **)	10	74	61	M30x1.5	36	112

*) from software version F119 or higher (August 2015). **) from software version F120 or higher (April 2022).