Overview Sheet P 14 E

This belongs to:
Leaflet map P 14 E
Probe data sheets.

Overview Sheet ULTRASONIC PROBES

Edition 04/12

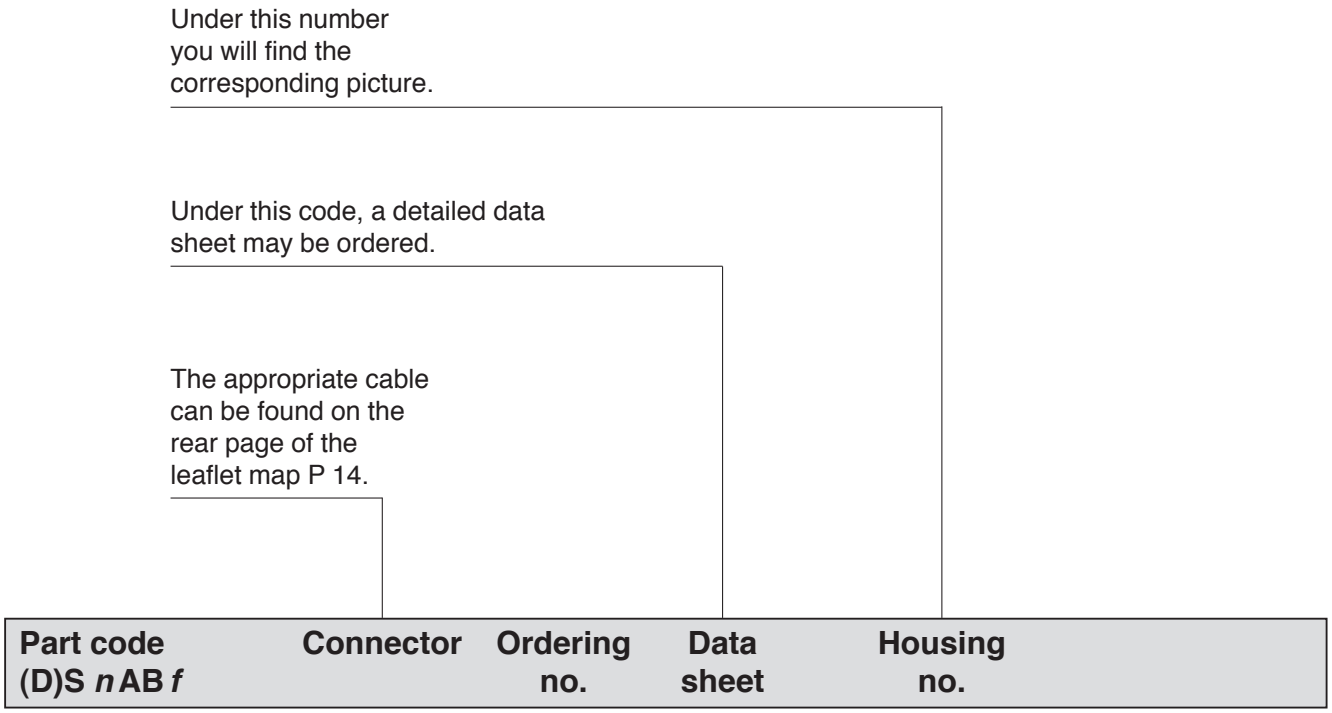
KARL DEUTSCH

The pages of this map give you an overview and already mention essential data.

A variety of probe cables are put together in the brochure map P 14, together with general aspects of the ultrasonic testing.

Detailed information is given on the probe data sheet.

The pages of this map are used as follows:



The denomination of KARL DEUTSCH probes contains the most important data.
Explanations are also given on the following pages, ahead of probe groups.

Examples:

- S 12 H 6: Straight beam probe, crystal dia. 12 mm, hard protective face, 6 MHz
- WK 45 PB 4: Angle beam probe, small size, angle 45°, extended bandwidth, 4 MHz
- TS 10 WB 2-7: Immersion probe, crystal dia. 10 mm, extreme bandwidth: 2-7 MHz

Table of Contents

Standard probes

Special probes

Standard probes

1. Straight beam contact probes

Technical meaning of the part codes:

D = fingertip design
S = straight beam probe
n = element dia. in mm
A = identfication of protective face
- H = hard protective face
- W = soft protective face
- P = plastic delay line

B = extended or extreme bandwidth (with band index)
f = nominal frequency or -6 dB - bandwidth in MHz
C = composite element

Element dia. 6mm:

Part code DS *n AB f*	**Connector**	**Order no.**	**Data sheet**	**Housing no.**
DS 6 HB 1-6	Microdot	1432.002	P1432.002	2
DS 6 HB 2-10	Microdot	1432.001	P1432.001	2
DS 6 PB 4-14 (incl. delay line)	Microdot	1422.001	P1422.001	5

Accessories for DS 6 PB 4-14:

Type	**Order no.**
Spare delay line (10 mm)	1932.001
High temperature delay line (10 mm)	1932.004
Spare retaining ring	1933.001

Element dia. 12mm:

Part code DS *n AB f*	**Connector**	**Order no.**	**Data sheet**	**Housing no.**
DS 12 HB 0,8-3	Microdot	1433.003	P1433.003	3
DS 12 HB 1-6	Microdot	1433.005	N-1	3

Straight beam probes - fingertip design:

DS 6 HB ...
Housing no. 2

DS 12 HB ...
Housing no. 3

DS 6 PB 4-14
Housing no. 5

Composite element dia. 10 mm, with replaceable protective foil:

Part code S *n A f* C	Connector	Order no.	Data sheet	Housing no.
S 10 W 2 C	Lemo 00	1410.004	P1410.004	6
S 10 W 4 C	Lemo 00	1410.003	P1410.003	6
S 10 W 6 C	Lemo 00	1410.002	P1410.002	6

Element dia. 12mm:

Part code S *n A*(B) *f*	Connector	Order no.	Data sheet	Housing no.
S 12 HB 0,8-3	Lemo 00	1411.010	P1411.010	7
S 12 HB 1-8	Lemo 00	1411.001	P1411.001	7
S 12 HB 1	Lemo 00	1411.009	P1411.009	7
S 12 HB 2	Lemo 00	1411.008	P1411.008	7
S 12 HB 4	Lemo 00	1411.003	P1411.003	7
S 12 HB 6	Lemo 00	1411.002	P1411.002	7
S 12 H 2	Lemo 00	1411.006	N-3E	7
S 12 H 4	Lemo 00	1411.005	N-3E	7
S 12 H 6	Lemo 00	1411.004	N-3E	7

Element dia. 12mm, with replaceable protective foil:

Part code S *n A f*	Connector	Order no.	Data sheet	Housing no.
S 12 W 1	Lemo 00	1401.005	P1401.005	8
S 12 W 2	Lemo 00	1401.004	P1401.004	8
S 12 W 2	Lemo 1	1401.0049	P1401.004	8
S 12 W 4	Lemo 00	1401.003	P1401.003	8
S 12 W 4	Lemo 1	1401.0039	P1401.003	8
S 12 W 6	Lemo 00	1401.002	P1401.002	8

Straight beam probes:

S 10 W ...
Housing no. 6

S 12 HB ... / S12 H …
Housing no. 7

S 12 W ...
Housing no. 8

Element dia.12mm, with replaceable delay line:

Part code S *n* PB *f*	Connector	Order no.	Data sheet	Housing no.
S 12 PB 1-5 (incl. delay line)	Lemo 00	1422.003	P1422.003	8
S 12 PB 1-3 (incl. delay line)	Lemo 00	1422.004	P1422.004	8

Accessories for S 12 PB 1-5:

Type	Order no.
Spare delay line (10 mm)	1932.005
Spare delay line (25 mm)	1932.006
High temperature delay line (25 mm)	1932.007
Spare retaining ring	1933.010

Element dia. 24mm:

Part code S *n A*(B) *f*	Connector	Order no.	Data sheet	Housing no.
S 24 HB 0,2-0,6	Lemo 1	1412.016	N-7	9
S 24 HB 0,3-1,3	Lemo 1	1412.012	P1412.012	9
S 24 HB 0,4-2	Lemo 1	1412.011	N-7	9
S 24 HB 0,5-4	Lemo 1	1412.010	N-7	9
S 24 HB 0,5	Lemo 1	1412.013	N-8E	9
S 24 HB 1	Lemo 1	1412.009	N-8E	9
S 24 HB 2	Lemo 1	1412.008	N-8E	9
S 24 HB 4	Lemo 1	1412.003	N-8E	9
S 24 H 1	Lemo 1	1412.007	N-9E	9
S 24 H 2	Lemo 1	1412.006	N-9E	9
S 24 H 4	Lemo 1	1412.005	N-9E	9

Element dia. 24mm, with replaceable protective foil:

Part code S *n A f*	Connector	Order no.	Data sheet	Housing no.
S 24 W 1	Lemo 1	1402.101	P1402.101	49
S 24 W 2	Lemo 1	1402.201	P1402.201	49
S 24 W 4	Lemo 1	1402.401	P1402.401	49

Element dia. 40mm:

Part code S *n A*(B) *f*	Connector	Order no.	Data sheet	Housing no.
S 40 HB 0,1-0,3	Lemo 1	1408.003	N-11E	10
S 40 HB 0,2-0,6	Lemo 1	1408.002	N-11E	10
S 40 HB 0,3-1	Lemo 1	1408.001	N-11E	10
S 40 HB 0,5	Lemo 1	1408.005	N-47E	10
S 40 HB 1	Lemo 1	1408.006	N-47E	10

Element dia. 40mm, with replaceable protective foil:

Part code S *n A f*	Connector	Order no.	Data sheet	Housing no.
S 40 W 1	Lemo 1	1408.007	N-47	10

Probe cable:

Type	Suitable for probe type	Order no.
Cable (2 m), Microdot- / Lemo 1- plug	DS ... HB ...	1615.200
Cable (2 m), Lemo 00- / Lemo 1- plug	S 10 … / S 12 ...	1614.020
Cable (5 m), Lemo 00- / Lemo 1- plug	S 10 … / S 12 ...	1614.050
Cable (2 m), Lemo 1- / Lemo 1- plug	S 24 ... / S 40 ...	1613.020
Cable (5 m), Lemo 1- / Lemo 1- plug	S 24 ... / S 40 ...	1613.050

Additional accessories:

Type	Suitable for probe type	Order no.
Protective foil set (10 ea.)	S 10 W ...	1930.007
Spare retaining ring for foils		1931.005
Protective foil set (10 ea.)	S 12 W ...	1930.006
Spare retaining ring for foils		1931.002
Protective foil set (10 ea.)	S 24 W ...	1930.008
Spare retaining ring for foils		1931.008
Protective foil set (10 ea.)	S 40 W ...	1930.003
Spare retaining ring for foils		1931.003

Straight beam probes:

S 24 W ...
Housing no. 49

S 24 HB ... / S 24 H ...
Housing no. 9

S 40 HB ... / S 40 W ...
Housing no. 10

2. Angle beam probes

Technical meaning of the part codes:

(S) = special
W = angle beam probe (addition K / G / M = identification of size)
α = beam angle
P = plastic delay line
B = extended bandwidth
f = nominal frequency in MHz
C = composite element

Ceramic element 9 x 8 mm, small housing (32 x 17 x 19 mm):

Part code WK α PB *f*	Connector	Order no.	Data sheet	Housing no.
WK 35 PB 2	Lemo 00	1441.001	1441.0	17
WK 45 PB 2	Lemo 00	1441.002	1441.0	17
WK 60 PB 2	Lemo 00	1441.003	1441.0	17
WK 70 PB 2	Lemo 00	1441.004	1441.0	17
WK 80 PB 2	Lemo 00	1441.005	N-5	17
WK 90 PB 2	Lemo 00	1441.006		17
WK 35 PB 4	Lemo 00	1441.011	1441.01	17
WK 45 PB 4	Lemo 00	1441.012	1441.01	17
WK 60 PB 4	Lemo 00	1441.013	1441.01	17
WK 70 PB 4	Lemo 00	1441.014	1441.01	17
WK 80 PB 4	Lemo 00	1441.015	N-5	17
WK 90 PB 4	Lemo 00	1441.016		17

(Available on request: connector Lemo 00 on top)

Composite element 9 x 8 mm, small housing (32 x 17 x 19 mm):

Part code WK α PB *f C*	Connector	Order no.	Data sheet	Housing no.
WK 45 PB 2 C	Lemo 00	1441.102	P1441.100	17
WK 60 PB 2 C	Lemo 00	1441.103	P1441.100	17
WK 70 PB 2 C	Lemo 00	1441.104	P1441.100	17

(Available on request: connector Lemo 00 on top)

Angle beam probes:

WK ...
Housing no. 17

SWM …
Housing no. 16

WG ...
Housing no. 18

Composite element 14 x 14 mm, medium size housing (40 x 25 x 32.5 mm):

Part code SWM α PB *f* C	Connector	Order no.	Data sheet	Housing no.
SWM 45 PB 2 C	Lemo 00	1498.081	P1498.081	16
SWM 60 PB 2 C	Lemo 00	1498.116	P1498.081	16
SWM 70 PB 2 C	Lemo 00	1498.117	P1498.081	16

(Available on request: frequency 5 MHz)

Ceramic element 24 x 16 mm, large housing (50 x 30 x 31 mm):

Part code WG α PB *f*	Connector	Order no.	Data sheet	Housing no.
WG 35 PB 2	Lemo 1	1416.235	P1416.2	18
WG 45 PB 2	Lemo 1	1416.245	P1416.2	18
WG 60 PB 2	Lemo 1	1416.260	P1416.2	18
WG 70 PB 2	Lemo 1	1416.270	P1416.2	18

(Available on request: frequencies 1 MHz and 4 MHz)

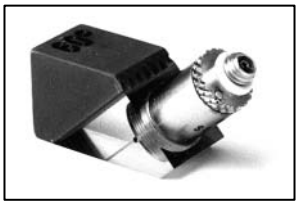
Accessories:

Type	Suitable for probe type	Order no.
Replacement wear plates (1 set = 10 ea.)	WK ...	1935.101
Perspex shoe		1820.171
Clamping spring		1822.170
Replacement wear plates (1 set = 10 ea.)	SWM ...	1935.301
Replacement wear plates (1 set = 10 ea.)	WG...	1935.202
Perspex shoe		1819.001
Clamping spring		1821.001

Screw-in probes with angle beam wedges
Element dia. 6 mm:

Part code S 6 WB *f* WM	Connector	Order no.	Data sheet	Housing no.
S 6 WB 2,25 WM	Microdot	1457.001	P1457	19
S 6 WB 5 WM	Microdot	1457.002	P1457	19
S 6 WB 10 WM	Microdot	1457.003	P1457	19

S 6 ... und WM ...
Housing no. 19



Accessories: Wedges **WM** α for beam angle α (° in steel)

Part code	Order no.	Data sheet	Housing no.
WM 45	1818.001	P1818	19
WM 60	1818.002	P1818	19
WM 70	1818.003	P1818	19
WM 90	1818.004	P1818	19

Probe cable:

Type	Suitable for probe type	Order no.
Cable (2 m), Microdot- / Lemo 1- plug	S 6 WB ...	1615.200
Cable (2 m), Lemo 1- / Lemo 1- plug	WG ...	1613.020
Cable (5 m), Lemo 1- / Lemo 1- plug	WG ...	1613.050
Cable (2 m), Lemo 00- / Lemo 1- plug	WK .../ SWM..	1614.020
Cable (5 m), Lemo 00- / Lemo 1- plug	WK .../ SWM..	1614.050

3. Angle beam probes, longitudinal waves

Technical meaning of the part codes:

WL = longitudinal wave angle beam probe
α = beam angle
P = plastic delay line
B = extended bandwidth
f = nominal frequency in MHz
C = composite element

Composite element dia. 12 mm, housing (40 x 20 x 50 mm):

Part code WL 12 /α PB *f*	**Connector**	**Order no.**	**Data sheet**	**Housing no.**
WL 12/45 PB 4 C	Lemo 00	1456.001		22
WL 12/60 PB 4 C	Lemo 00	1456.002		22
WL 12/70 PB 4 C	Lemo 00	1456.003		22

Straight beam probe with angle beam wedges for longitudinal waves Element dia. 24 mm:

Part code S *n* HB *f* WL	**Connector**	**Order no.**	**Data sheet**	**Housing no.**
S 24 HB 1,5 WL	Lemo 00	1412.017	N-32	21

Accessories: Angle beam wedges **WL 24/α** for beam angle α (longitudinal wave in steel)

Part code	**Order no.**	**Data sheet**	**Housing no.**
WL 24/45	1813.101	N-32	21
WL 24/60	1813.201	N-32	21
WL 24/70	1813.301	N-32	21

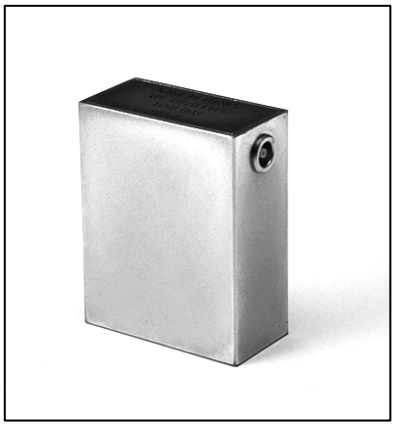
Probe cable:

Type	**Suitable for probe type**	**Order no.**
Cable (2 m), Lemo 00-/ Lemo 1- plug	WL 24.../ S 24 ... WL	1614.020
Cable (5 m), Lemo 00-/ Lemo 1- plug	WL 24.../ S 24 ... WL	1614.050

Angle beam probes for longitudinal waves:

S 24 HB ... und WL 24/ ...
Housing no. 21

WL 12/ ...
Housing no. 22



4. TR probes for wall thickness gauges

Technical meaning of the part codes:

DSE = TR probe for thickness gauge
n = element dia. resp. element dimensions in mm
z = focal distance in steel (mm)
P = plastic delay line
B = extended bandwidth
f = nominal frequency in MHz

Element dimensions 4 x 2 mm:

Part code DSE *n* /*z* P(B)*f*	Cable	Plug	Order no.	Housing no.
DSE 4.2/4 PB 8	1 m	Lemo 00	1465.661 [1]	56
DSE 4.2/4 PB 10	1 m	Lemo 00	1465.671 [2]	56

Element dimensions 10 x 4 mm:

Part code DSE *n* / *z* P(B) *f (C)*	Cable	Plug	Order no.	Housing no.
DSE 10.4/6 PB 4	1 m	Lemo 00	1465.761 [1]	12
DSE 10.4/6 PB 4	1 m	Lemo 00	1465.762 [2]	12
DSE 8.3/15 PB 5 C	1 m	Lemo 00	1465.771 [3]	12

Element dia. 18 mm:

Part code DSE *n* / *z* P(B)*f*	Cable	Plug	Order no.	Housing no.
DSE 18/25 PB 2	1 m	Lemo 00	1465.361 [1, 2]	13

Suitable for Echometer: [1] E1073 / E1074 / E1075 – [2] E1076 – [3] E1076 TC

Accessories:

Type	Suitable for probe type	Order no.
Handling sleeve	DSE 4.2/4 ...	1934.251
Protective foil set (10 ea.)		1930.005
Handling sleeve	DSE 10.4/6 ...	1934.151
Protective foil set (10 ea.)	DSE 8.3/15 …	1930.006
Handling sleeve	DSE 18/25 ...	1934.201
Protective foil set (10 ea.)		1930.004

TR probes for ECHOMETER thickness gauges:

DSE 4.2/4 ...
Housing no. 56

DSE 10.4 ... / DSE 8.3 …
Housing no. 12

DSE 18/25 PB ...
Housing no. 13

5. Standard TR probes

Technical meaning of the part codes:

SE = TR probe
n = element dia. resp. element dimensions in mm
z = focal distance in steel (mm)
P = plastic delay line
B = extended bandwidth
f = nominal frequency in MHz
C = composite element

Element dimensions 4 x 2 mm:

Freq.	Part code SE *n* /*z* P(B)*f*	Cable	Plug	Order no.	Data sheet	Housing no.
6 MHz	SE 4.2/4 P 6	1.5 m	Lemo 1	1464.001	P1464.001	56
10 MHz	SE 4.2/4 PB 10	1.5 m	Lemo 1	1464.101	P1464.001	56

Composite element dia. 6 mm:

Freq.	Part code SE *n/z* PB *f C*	Cable	Plug	Order no.	Data sheet	Housing no.
4 MHz	SE 6/5 PB 4 C	1.5 m	Lemo 1	1464.165		57

Composite element dia. 10 mm:

Freq.	Part code SE *n / z* PB *f C*	Connector	Order no.	Data sheet	Housing no.
2 MHz	SE 10/10 PB 2 C	Lemo 00 *	1462.044	P1462.044	14
4 MHz	SE 10/ 6 PB 4 C	Lemo 00 *	1462.106	P1462.1	14
4 MHz	SE 10/14 PB 4 C	Lemo 00 *	1462.144	P1462.1	14
6 MHz	SE 10/ 6 PB 6 C	Lemo 00 *	1462.206	P1462.206	14

Element dia. 18 mm:

Freq.	Part code SE *n / z* P *f*	Connector	Order no.	Data sheet	Housing no.
2 MHz	SE 18/25 PB 2	Lemo 00 *	1463.225	P1463.2	15
4 MHz	SE 18/16 PB 4	Lemo 00 *	1463.416	P1463.4	15
4 MHz	SE 18/40 PB 4	Lemo 00 *	1463.440	P1463.4	15

* Receiver connector marked by red colour

Standard TR probes:

SE 4.2/4 ...
Housing no. 56

SE 6/5 PB 4 C
Housing no. 57

SE 10 / ...
Housing no. 14

SE 18 / ...
Housing no. 15

Accessories for TR probes:

Type	Suitable for probe type	Order no.
Handling sleeve	SE 4.2/4 ...	1934.251
Protective foil set (10 ea.)		1930.005
Spare retaining ring for foils	SE 6/5 ...	1931.005
Protective foil set (10 ea.)		1930.007
Spare retaining ring for foils	SE 10/ ...	1931.002
Protective foil set (10 ea.)		1930.006
Spare retaining ring for foils	SE 18/ ...	1931.008
Protective foil set (10 ea.)		1930.008
Twin cable 2m, Lemo 00 - / Lemo1 - plug	SE 10/ ... SE 18/...	1614.022

6. TR angle beam probes

Technical meaning of the part codes:

WSE = TR angle beam probe
b = element width in mm
l = element height in mm
α = beam angle
P = plastic delay line
B = extended bandwidth
f = nominal frequency in MHz
(L) = longitudinal wave probe

Rectangular housing (32 x 17 x 19 mm), connectors Microdot:

Part code WSE(L) *b.l* / α PB *f*	Order no.	Data sheet	Housing no.
WSE 5.6/45 PB 4	1461.311	P1461.31	20
WSE 5.6/60 PB 4	1461.312	P1461.31	20
WSE 5.6/70 PB 4	1461.313	P1461.31	20
WSEL 5.8/45 PB 4	1461.401	P1461.4	20
WSEL 5.8/60 PB 4	1461.402	P1461.4	20
WSEL 5.8/70 PB 4	1461.403	P1461.4	20

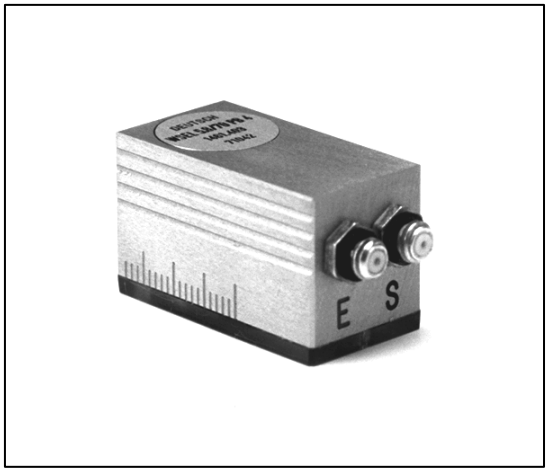
Probe cable:

Type	Order no.
Twin cable (2 m), Microdot- / Lemo 1- plug	1615.202

TR angle beam probes:

WSE 5.6 / ... – WSEL 5.8 / ....

Housing no. 20



7. Immersion probes

Cylindrical housing, 1.5 m resp. 2.5 m cable, Lemo 1 - plug, optional BNC-plug

Technical meaning of the part codes:

(S) = special
T = immersion
S = straight beam
n = element dia. or dimensions in mm
A = identfication of face
W = soft matching layer
P = plastic delay line, focusing type

B = extended or extreme bandwidth (with band index)
f = nominal frequency or -6 dB - bandwidth in MHz
P = point focused
L = line focused
z = focal distance
C = composite element

Element dia. 6 mm, housing dia. 9 x 55 mm:

Part code TS *n AB f*	Cable	Plug	Order no.	Data sheet	Housing no.
TS 6 WB 4	1.5 m	Lemo 1	1503.301	N-39	24
TS 6 WB 6	1.5 m	Lemo 1	1503.401	N-40	24
TS 6 WB 10	1.5 m	Lemo 1	1503.621	P1503.621	24
TS 6 WB 2-7	1.5 m	Lemo 1	1503.311	N-33	24
TS 6 WB 6-12	1.5 m	Lemo 1	1503.5051	P1503.505	24
TS 6 WB 4-20	1.5 m	Lemo 1	1503.601	N-23	24
TS 6 PB 4	1.5 m	Lemo 1	1503.303	(N-39)	24
TS 6 PB 6	1.5 m	Lemo 1	1503.413	(N-40)	24
TS 6 PB 10	1.5 m	Lemo 1	1503.632		24
TS 6 PB 2-7	1.5 m	Lemo 1	1503.316	N-38	24
TS 6 PB 4-20	1.5 m	Lemo 1	1503.611	N-49	24

Element dia. 10 mm, housing dia. 13 x 55 mm:

Part code TS *n AB f*	Cable	Plug	Order no.	Data sheet	Housing no.
TS 10 WB 4	2.5 m	BNC	1504.304	P1504.304	25
TS 10 WB 2-7	2.5 m	Lemo 1	1505.306	N-25	25
TS 10 WB 6-12	2.5 m	BNC	1504.501		25
TS 10 PB 2-7 L 50 ♦	2.5 m	BNC	1504.308		25
TS 10 PB 2-7 L 75 ♦	2.5 m	BNC	1504.306	P1504.306	25
TS 10 PB 2-7 L100 ♦	2.5 m	BNC	1504.307		25

♦ Stop collar with slot

Composite-Element dia. 10 mm, housing dia. 13 x 55 mm:

Part code TS *n AB f* C	Cable	Plug	Order no.	Data sheet	Housing no.
TS 10 WB 2 C	2.5 m	BNC	1504.244	P1504.244	25
TS 10 WB 4 C	2.5 m	BNC	1504.344	P1504.344	25

Element dia. 12 mm, housing dia. 16 x 55 mm:

Part code TS *n AB f*	Cable	Plug	Order no.	Data sheet	Housing no.
TS 12 WB 2	2.5 m	Lemo 1	1505.201	N-41	26
TS 12 WB 4	2.5 m	Lemo 1	1505.302	N-42	26
TS 12 WB 5	2.5 m	Lemo 1	1505.351	P1505.351	26
TS 12 WB 6	2.5 m	Lemo 1	1505.403	P1505.403	26
TS 12 WB 0,8-3	2.5 m	Lemo 1	1505.205	N-26	26
TS 12 WB 2-7	2.5 m	Lemo 1	1505.416	N-27	26
TS 12 WB 3-12	2.5 m	Lemo 1	1505.401	N-28	26
TS 12 PB 4	2.5 m	Lemo 1	1505.312	P1505.3128	26
TS 12 PB 6	2.5 m	Lemo 1	1505.406	(N-43)	26
TS 12 PB 0,8-3	2.5 m	Lemo 1	1505.210	(N-26)	26
TS 12 PB 2-7	2.5 m	Lemo 1	1505.421	(N-27)	26
TS 12 PB 3-12	2.5 m	Lemo 1	1505.411	(N-28)	26

Element dia. 20 mm, housing dia. 24 x 55 mm:

Part code TS *n AB f*	Cable	Plug	Order no.	Data sheet	Housing no.
TS 20 WB 1	2.5 m	Lemo 1	1507.101	N-34	27
TS 20 WB 2	2.5 m	Lemo 1	1507.201	P1507.201	27
TS 20 WB 4	2.5 m	Lemo 1	1507.301	P1507.301	27
TS 20 PB 4	2.5 m	Lemo 1	1507.311		27

Immersion probes:

TS 6 ...
Housing no. 24

TS 10 ...
Housing no. 25

TS 12 ...
Housing no. 26

TS 20 ...
Housing no. 27

Element dia. 6 mm, housing dia. 9.5 x 25 mm, without stop collar:

Part code STS *n AB f* (P/L *z*)	Cable	Plug	Order no.	Data sheet	Housing no.
STS 6 WB 2-7	2.5 m	Lemo 1	1503.325		32
STS 6 WB 6-12	2.5 m	Lemo 1	1503.501		32
STS 6 WB 4-20	2.5 m	BNC	1503.605		32
STS 6 PB 2-7 L30	2.5 m	Lemo 1	1503.327		32
STS 6 PB 6-12 L30	2.5 m	Lemo 1	1503.502		32
STS 6 PB 4-20 P30	2.5 m	Lemo 1	1503.618		32

Element dia. 10 mm, housing dia. 13 x 64 mm, without stop collar:

Part code TS *n AB f*	Cable	Plug	Order no.	Data sheet	Housing no.
TS 10 WB 2	2.5 m	Lemo 1	1504.202		33
TS 10 WB 4	2.5 m	Lemo 1	1504.303		33
TS 10 WB 0,8-3	2.5 m	Lemo 1	1504.201		33
TS 10 WB 2-7	2.5 m	Lemo 1	1504.301		33
TS 10 WB 6-12	2.5 m	Lemo 1	1504.502		33

Element dia. 24 mm, housing dia. 30 x 64 mm, without stop collar:

Part code TS *n AB f*	Cable	Plug	Order no.	Data sheet	Housing no.
TS 24 WB 0,2-0,6	1.5 m	Lemo 1	1508.001		53
TS 24 WB 0,8-3	1.5 m	Lemo 1	1508.200		53

Immersion probes, housing without stop collar:

STS 6 ...
Housing no. 32

TS 10 ...
Housing no. 33

TS 24 ...
Housing no. 53

Probes with UHF connector:

Housing (dia. x H) mm	Part code TS *n* WB *f*	Order no. (see pages 7-1 / 7-2)	Additional order no. for UHF	Housing no.
16 x 35	TS 6 WB ...	1503. xxx	1599.009	30
16 x 53	TS 12 WB ...	1505. xxx	1599.009	31
24 x 55	TS 20 WB ...	1507. xxx	1599.009	29

Focusing:

Focused probes (marked with “PB“ in the part code) can be ordered with point or line focus of 15, 20, 25, 30, 50, 75 or 100 mm focal distance without surcharge. (Example for line focus, 30 mm: TS 6 PB 4-20 **L 30**)

Please indicate type and distance of focus in case of order!

Special configurations:

Type	Order no.
BNC - plug instead of Lemo 1 - plug	1500.001
Lemo 1 - plug instead of BNC - plug	1500.002
Special focal distance	1599.008

Immersion probes, UHF:

TS 6 ...
Housing no. 30

TS 12 ...
Housing no. 31

TS 20 ...
Housing no. 29

8. Angle beam probes (waterproof) for automated testing

Technical meaning of the part codes:

TW = Angle beam probe (waterproof)
b = element width in mm
l = element height in mm
α = beam angle
P = plastic delay line
f = nominal frequency in MHz
C = composite element

Cylindrical housing, without cable, connector Lemo 0 (waterproof):

Housing (dia. x H) mm	Part code TW *b.l* / α P *f*	Order no.	Data sheet	Housing no.
16 x 55	TW 7.5/35 P 4	1564.310	P1564.3	34
16 x 55	TW 7.5/45 P 4	1564.320	P1564.3	34
16 x 55	TW 7.5/60 P 4	1564.360	P1564.3	34
16 x 55	TW 7.5/70 P 4	1564.370	P1564.3	34
30 x 55	TW 9.8/45 P 4	1568.320	P1568.3	35
30 x 55	TW 9.8/70 P 4	1568.370	P1568.3	35

Cylindrical housing, without cable, connector Lemo 0 (waterproof), composite element:

Housing (dia. x H) mm	Part code TW *b.l* / α PB *f* C	Order no.	Data sheet	Housing no.
16 x 55	TW 7.5/45 PB 4 C	1564.324	P1564.300	34
16 x 55	TW 7.5/70 PB 4 C	1564.374	P1564.300	34
30 x 55	TW 9.8/45 PB 4 C	1568.324	P1568.300	35
30 x 55	TW 9.8/70 PB 4 C	1568.374	P1568.300	35

Probe cable:

Type	Suitable for probe type	Order no.
Cable (2 m), Lemo 1 - plug / Lemo 0 (waterproof) - plug	TW 7.5 .../ TW 9.8 ...	1611.021

Angle beam probes:

TW 7.5/ ...
Housing no. 34

TW 9.8/ ...
Housing no. 35

9. TR probes (waterproof) for automated testing

Cylindrical housing, fixed cable 2.5 m
No external matching coils required
BNC - plug (optional Lemo1 - plug) with colour marking:
- Transmitter connector: Black
- Receiver connector: Red

Technical meaning of the part codes:

n = element dia. or dimensions in mm
z = focal distance in steel (mm)
P = plastic delay line
B = extended bandwidth
f = nominal frequency in MHz
C = composite element

Housing (dia. x H) mm	Part code TSE *n l z* P *f*	Cable	Order no.	Data sheet	Housing no.
16 x 55	TSE 10/ 6 PB 4 C	2.5 m	1525.346		26
16 x 55	TSE 10/ 6 P 4	2.5 m	1525.354		26
16 x 55	TSE 10/12 P 4	2.5 m	1525.350		26
16 x 55	TSE 10/30 P 4	2.5 m	1525.355		26
24 x 55	TSE 18.3/10 PB 4 C ♦	2.5 m	1527.331		27
24 x 55	TSE 18 /16 PB 4	2.5 m	1527.355		27
24 x 55	TSE 18 /40 P 4	2.5 m	1527.350		27
30 x 55	TSE 20.8/60 P 4	2.5 m	1528.350		28
30 x 55	TSE 24.5/ 6 PB 4	2.5 m	1528.356		28

♦ Stop collar with slot

TR probes:

TSE 10/...
Housing no. 26

TSE 18...
Housing no. 27

TSE 20.8/ ... - TSE 24.5...
Housing no. 28

Special probes

10. Special probes for manual testing

Straight beam contact probes, element dia. 3 mm:

Housing/ connector/ description	Part code	Order no.	Data sheet
Housing dia. 6.35 mm x 10 mm, Microdot connector, with hard protective face	SDS 3 HB 15	1498.048	
Housing with retaining ring, Microdot connector, with replaceable delay line	SDS 3 PB 15	on request	

Low frequency contact probes, transmission mode :

For testing of high-absorption materials like concrete, graphite etc.

Technical meaning of the part codes:

S = straight beam probe
n = element dia. in mm
H = hard protective face
B = extended bandwidth
f = nominal frequency
X = S : transmitter probe ;
E : receiver probe

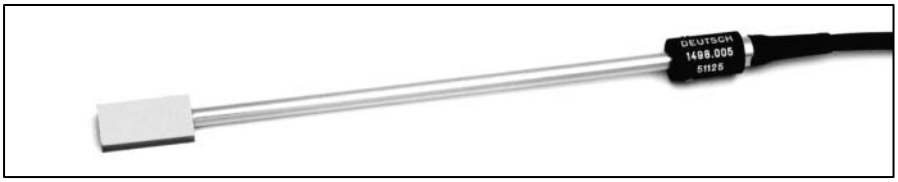
Pair of transmission mode contact probes S 40 HB 0,04

Housing/ connector/ description	Part code S *n* HB *f* *X*	Order no.	Data sheet
Housing no. 10 / page1-3 Lemo 1 - connector, transmitter probe	S 40 HB 0,04 S	1408.008	P1408.0089
Housing no. 9 / page1-3 Lemo 1 - connector, transmitter probe	S 24 HB 0,1 S	1498.063	
Housing no. 10 / page1-3 Lemo 1 - connector, receiver probe	S 40 HB 0,04 E	1408.009	P1408.0089
Housing no. 9 / page1-3 Lemo 1 - connector, receiver probe	S 24 HB 0,1 E	1498.064	

TR probe for insulator testing:

Housing/ connector/ description	Part code	Order no.	Data sheet
Rectangular, 12 x 6 x 25 mm, 1.5 m cable, Lemo 00 - plug, radius can be matched to curved surfaces	XSE 6.2/6 P 4	on request	

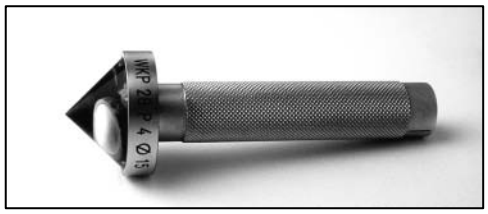
Probe for insulator testing



Probes for testing of railway wheels:

Housing/ connector/ description	Part code	Order no.	Data sheet
Rectangular, 115 x 30 x 42 mm Lemo 1 - connector, surface wave probe for wheel testing (matched to radius)	SWG 90 P 0,4	on request	
Cylindrical, dia. 50 mm with 90°- cone, Lemo 1 - connector, cone probe with beam angle 29° (transv.)	WKP 29 P 4 ∅ 15	1498.104	

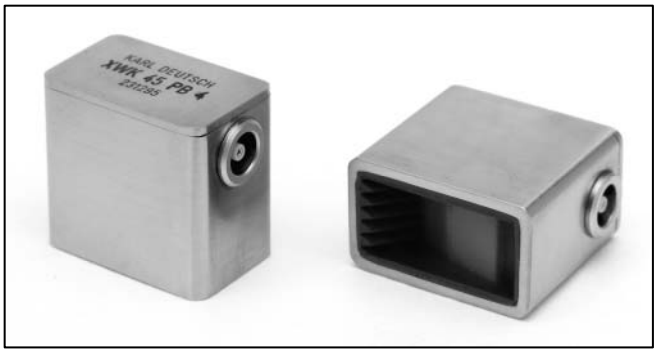
Surface wave probe for testing of railway wheels



Cone probe for testing of railway wheels

Angle beam probe with special housing

Housing/ connector/ description	Part code	Order no.	Data sheet
Rectangular, 25 x 15 x 22,5 mm, Lemo 00 , element 9 x 8 mm	XWK 45 PB 4	on request	



Angle beam probe in stainless steel housing

11. Special probes for automated testing

Immersion probes:

Housing/ connector/ description	Part code	Order no.	Data sheet
Cylindrical, dia. 6.35 x 15 mm 2.0 m cable, Lemo 1, element dia. 3 mm, point focus 20 mm	TS 3 PB 6-22 P 20	1501.606	N-52
	TS 3 PB 18 P 20	1501.701	N-53
Cylindrical, dia. 18 x 55 mm, pressure-tight Lemo-connector, element dia. 15 mm	STS 15 WB 2-7 ♦	1506.305	P1506.305
Cylindrical, dia. 24 x 55 mm, pressure-tight Lemo-connector, composite element 20 x 6mm, de-focusing	STS 20.6 WB 4 C-D ♦	1507.324	P1507.324

♦ **Accessories:** Cable (2.5 m), Lemo FVN - / BNC - plug Order no.: 1611.026

TS 3 PB 6-22 P 20

Immersion probes for pipeline testing:

(temperature shock proof up to 120°C, pressure-tight up to 120 bar)

Housing/ connector/ description	Part code	Order no.	Data sheet
Cylindrical, dia. 9 x 14 mm, fixed cable without plug, point focus 35 mm	STS 6 PB 2-7 P35 HT-120°C	1503.328	P1503.328
Cylindrical, dia. 14 x 25 mm, pressure-tight Lemo-connector, point focus 60 mm	TS 10 PB 2-7 P60 HT-120°C	1505.317	P1505.317
Cylindrical, dia. 20 x 25 mm, pressure-tight Lemo-connector	STS 15 WB 4 HT-120°C	1506.301	P1506.301

Pipeline immersion probes:

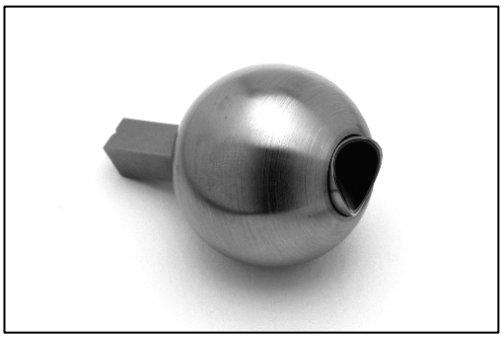
STS 6 PB 2-7 P35 HT-120°

TS 10 PB 2-7 P60 HT-120°

STS 15 WB 4 HT-120°

Immersion probes, ball housing:

Housing/ connector/ focussing	Part code	Order no.	Data sheet
Ball dia. 20 mm, 0.2 m cable, line focus 20 mm	STS 6 PB 10 L 20	on request	
Ball dia. 37 mm, MCX - connector, line focus 30 mm	STS 10 PB 5 L 30	on request	



Line focused immersion probes (ball housing)

Composite probs for testing of tubes and bars:

Technical meaning of the part codes:

TSC	= immersion composite type	W	= soft matching layer
z	= focal distance in water (mm)	B	= extended bandwidth
φ	= beam aperture angle	*f*	= nominal frequency

(Rectangular stainless steel housing, 1.3 m cable, SMB-plug)

Housing dimensions	Part code TSC z / φ WB *f*	Order no.	Data sheet
15.5 x 33 x 13 mm	TSC 20/30 WB 4	1511.3217	
37/29 x 34 x 13 mm	TSC 40/30 WB 4	1511.3227	
37 x 34.5 x 13 mm	TSC 60/30 WB 4	1511.3237	
50 x 36 x 13 mm	TSC 85/30 WB 4	1511.3247	
64 x 36 x 13 mm	TSC 130/25 WB 4	1511.3277	

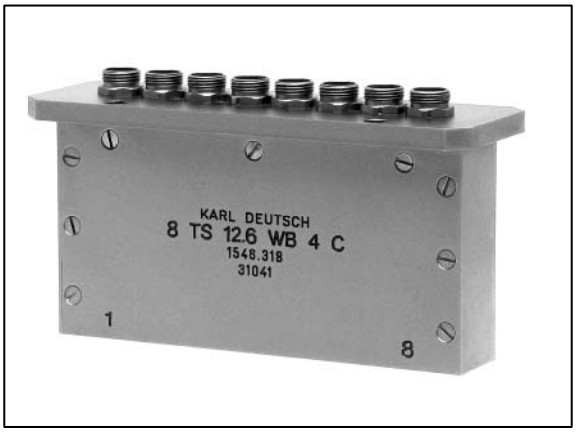
Line focused composite probes

Composite multi-element immersion probes:

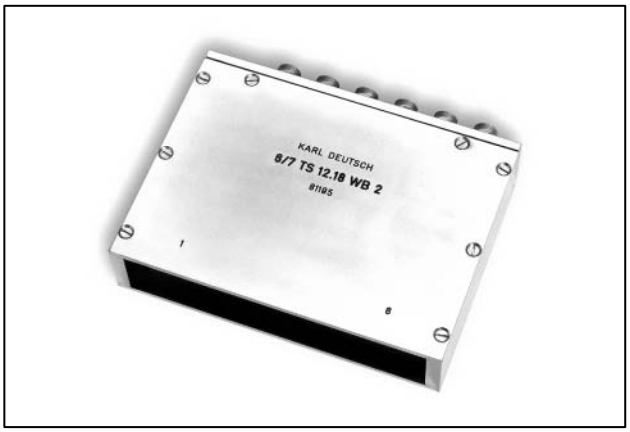
Housing/ description	Part code	Order no.	Data sheet
Rectangular, 110 x 20 x 55 mm 8 elements 4 MHz 12 x 6 mm	8 TS 12.6 WB 4 C	1546.318	on request
Rectangular, 110 x 20 x 55 mm 6 elements 4 MHz 16 x 8 mm, broadband	6 TS 16.8 WB 2-6 C	1546.319	on request

Composite multi-element immersion probes with built-in electronic for overlapping sound pattern:

Housing/ description	Part code	Order no.	Data sheet
Rectangular, 135 x 30 x 100mm 7 elements, 2 MHz, 12 x 18mm	6/7 TS 12.18 WB 2	1546.205	on request
4 MHz, 12 x 14mm	6/7 TS 12.14 WB 4	1546.305	on request
Rectangular, 135 x 30 x 100mm 7 elements, 4 MHz, 12 x 14mm, broadband	6/7 TS 12.14 WB 2-6	on request	



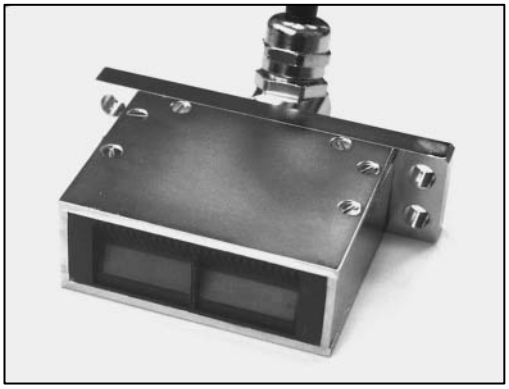
Composite multi-element immersion probe with 8 elements 12 x 6 mm



Composite multi-element immersion probe with built-in electronic

Composite multi-element angle beam probe:

Housing/ connector/ description	Part code	Order no.	Data sheet
Rectangular, 65 x 25 x 56 mm 1.5 m cable, Lemo 1 - plug, **2 composite elements**, beam angle 45°, testing trace appr. 40 mm	2 STW 20.8/45 PB 4 C	on request	



Composite multi-element angle beam probe with 2 elements 20 x 8 mm

TR probes with composite elements:

Housing/ connector/ description	Part code	Order no.	Data sheet
Cylindrical, dia. 30 x 60 mm 2.5 m cable, BNC-plug	STSE 18.3/ 10 PB 4 C	1598.174	
Cylindrical, dia. 36 x 55 mm, pressure-tight Lemo-connector	TSE 28.3/ 8 PB 4 C	1529.361	P1529.361

Multi-element TR probes:

Housing/ connector/ description	Part code	Order no.	Data sheet
Rectangular, 65 x 25 x 48 mm 1.1 m cable, special connector, **composite elements**, 1 transmitter, 3 receivers testing trace 54 mm	3STSE 18.3/8 PB 5 C	1553.332	P1553.332
Rectangular,150 x 29 x 54mm 1.5m cable, special connector 1 transmitter, 3 receivers testing trace 100 mm	3 TSE 36.6/12 P 4	on request	

TR probes with composite elements

Multi-element TR probes (composite type)

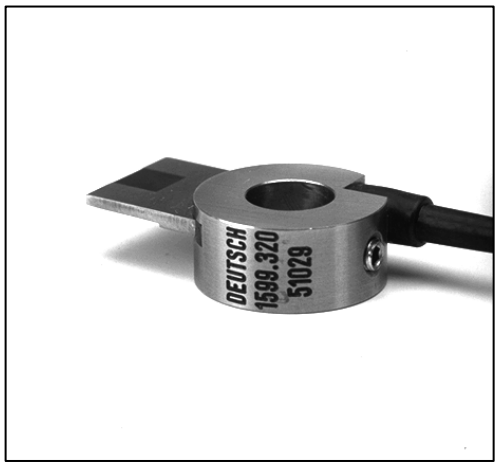
Piston probes :

Technical meaning of the part codes:

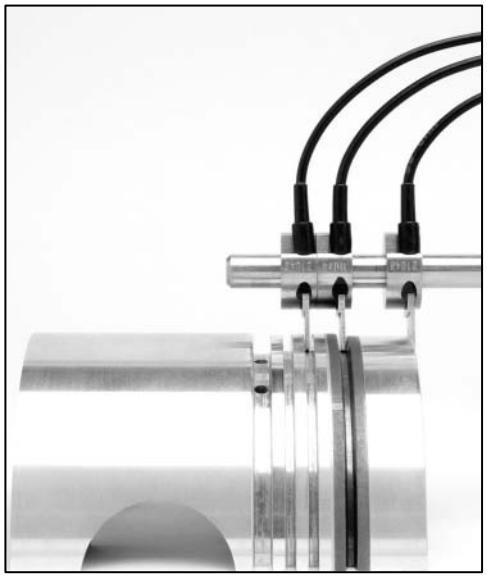
MKP = miniature piston probe
x.y = element dimensions in mm
z = thickness of crystal carrier in mm
W = soft protective face
f = nominal frequency

- for normal operation 3 crystal carriers MKP... (1 transmitter, 2 receivers) and 1 guiding bar are required
- crystal carriers of same frequency may be combined
- other dimensions of crystal carriers possible

Housing/ connector/ description	**Part code MKP *x.y* / *z* W *f***	**Order no.**	**Data sheet**
Crystal carrier 16 x 12 mm 1.5 m cable, Lemo 1	MKP 6.4/2,0 W 4	1599.330	on request
Crystal carrier 16 x 12 mm 1.5 m cable, Lemo 1	MKP 6.4/1,5 W 4	1599.320	on request
Crystal carrier 16 x 12 mm 1.5 m cable, Lemo 1	MKP 6.3/1,2 W 4	1599.310	on request
Crystal carrier 16 x 12 mm 1.5 m cable, Lemo 1	MKP 6.2,5/1,2 W 6	1599.305	on request
Guiding bar dia. 10 x 240 mm		1599.340	



Piston probe: single crystal carrier



Application of piston probes: piston with 3 crystal carriers

Ultrasonic Couplants

For Manual Testing in Contact Technique

ECHOTRACE – Couplant

ECHOTRACE – couplant is a fragrant gel based on water, and better than oil, grease, or water: It achieves a very good coupling, does not soil, and is free of sulphur, halogen and phosphor; it contains rust preventive, is skin-friendly and incombustible. ECHOTRACE is no subject of marking.
Temperature range: 0 °C to +80 °C

Ordering no.s:

Tube 0.1 l:	9000.004
Bottle 0.5 l:	9000.003
Cubitainer 5 l:	9000.002

ECHOTRACE High-Temperature Couplant:

It is a high-temperature resistive grease based on silicon oil without dangerous ingredients. This special couplant allows measurement on workpieces with surface temperatures between -40 °C upto +290 °C

Ordering no.:

Tube 100g:	9000.005

ECHOFLUID – Couplant

ECHOFLUID is a non-smelling liquid of a similarly low viscosity as oil or water. Otherwise, with ECHOFLUID, due to its higher sound velocity, a better coupling can be reached rather than with water, oil, glycerine, or other fluids. ECHOFLUID can also be recommended for higher frequencies and for wall thickness gauging. ECHOFLUID may be used as a couplant for practically all materials, can be removed without any residue, offers excellent corrosion protection, is not skin irritant and free of sulphur, halogenes, phosphor, and silicon.
Temperature range: 0 °C to +80 °C

Ordering no.s:

Bottle 0.1 l:	9004.001
Bottle 1.0 l:	9004.002
Bottle 10 l:	9004.003

For Immersion Testing or Flow Water Coupling

ECHOKOR Water-Additive

Water is a common couplant, but generates corrosion of workpieces and testing device. Common rust preventives very often remarkably reduce the tool life of ultrasonic probes. ECHOKOR is added to the water in 1 to 2,5 volume per cent and thus reliably protects even materials sensitive to corrosion. ECHOKOR does not foam, can easily be dissolved in water and attacks neither skin nor probes.

Ordering no.s:

Bottle 1 l:	9027.001
Can 5 l:	9027.002

For all products listed on this page, free-of-charge samples are available.
Detailed safety data sheets are also available direct from our homepage.

Useful Hints

KARL DEUTSCH ultrasonic probes are developed and manufactured according to the latest state of the art. Aim of the development was to reach first class acoustical data together with a long- lasting life time. Extensive measures were taken to reach this: For instance, vertical probes for contact technique are, depending on the surface quality of the test object, furnished with heavy-duty carbide facing or soft protective covers as a protection against impact and abrasion. Protective layers of special plastic materials are used on immersion probes to resist the unavoidable chemical attack of the coupling fluids in use.
But, despite all perfection,
ultrasonic probes are subject to wear and tear (as e.g. car tyres are) and therefore cannot have unlimited life time.
This is specially valid, when the user – in most cases without knowledge – expects much more of a probe as initially provided. A premature malfunction often can be avoided by choice of the suitable type.
Our travelling engineers and applicational laboratory are prepared to let you have competent and free-of-charge advice.
From more than half a century of experience as probe manufacturers, here is a compilation of the most important endangerings:

1. Mechanical Abrasion of Contact Technique Probes
Even a wear-resistive delay line cannot permanently withstand when the probes are pushed on sharp edges or pulled along a rough surface of the workpieces. This must specially be considered for high-frequency probes with extremely thin protective layers due to acoustical reasons.

Remedial measures:

Careful attachment and handling.
Use of highly viscous couplants (e.g. oil or KARL DEUTSCH ECHOTRACE, ECHOFLUID)
Use of protective foils (even when acoustic properties may be deteriorated).

2. Chemical Resistance
Particularly in case of immersion technique, rust inhibitors are added to aqueous couplants to avoid corrosion of the workpieces to be tested. However they may chemically attack the probes. Again, mainly high-frequency probes are endangered with their thin protective layers. The process of chemical destruction will considerably be accelerated when the concentration of rust inhibitor is unnecessarily or thoughtlessly increased.

Remedial measures:

Only KARL DEUTSCH ECHOKOR (article no. 9027) in the recommended concentration should be used as corrosion inhibitor. ECHOKOR in designed for optimum protection of workpiece and installation and for non-reactive properties for the probes.
Beyond this, specially protected probes to be operated in aggressive media (e.g. alcohol) are available.

3. Thermal Overload
The temperature given in the probe data sheet may fully be used, but should never be exceeded even for short periods.

4. Electrical Overload
All KARL DEUTSCH probes are designed to be operated with maximum transmitter power of all ECHOGRAPH flaw detectors. Operation with foreign brands normally does not exhibit any problems, too. In a few special cases, e.g. with high-power pulser/receivers or customized installations and high-frequency probes, measures should be taken to limit the maximum pulse power to a value innocuous for the probes.

5. Probe Holders
The holders for plant probes (cylindrical housing) should be designed to clamp the probe housing in a laminar manner (axially symmetric). In the area between lower side and a third of probe length (acoustic area) no clamping should be carried out.

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