February 2016
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10 YEARS
1/12

NEW PRODUCT NEWS

H-DRILL

new

NHD - Improved Solid Carbide Drill

TaeguTec
Member IMC Group

KEY POINT

TaeguTec is pleased to introduce a new solid carbide drill - NHD Drill - which is an improved line over the existing SHD and SHO drills for outstanding performance.

The new **NHD** drill is designed for improved drilling stability because of the optimized cutting edges. A sharp straight cutting edge with precise web thinning generates low cutting force and excellent self-centering capability for higher accuracy holes. The drill's wide chip gullet with polished flute enables smooth chip evacuation.

A new multi-layered coating technology gives maximized toughness as well as increased wear resistance and this helps to prolong the tool life through high efficiency machining.

NHD drills are offered in 3.0mm-12.0mm diameter range and available in 3xD and 4-5xD depth of cut range. TaeguTec's **NHD** drills are listed as standard items and come with or without coolant holes.

The existing SHD & SHO drills will be phased out and replaced with the new **NHD** drill when current stock is depleted. Tailor made **NHD** drills, such as over 12mm diameter are available upon request.

Features

- Optimized cutting edge design for improved drilling stability
- Low cutting force & excellent self-centering capability due to the sharp straight cutting edge with precise web thinning
- Wide chip gullet with polished flute for smooth chip evacuation
- New multi-layered coating for longer tool life
- Drill diameter range: 3.0mm-12.0mm(0.1mm increments)
- Drilling depth of cut: 3xD, 4-5xD

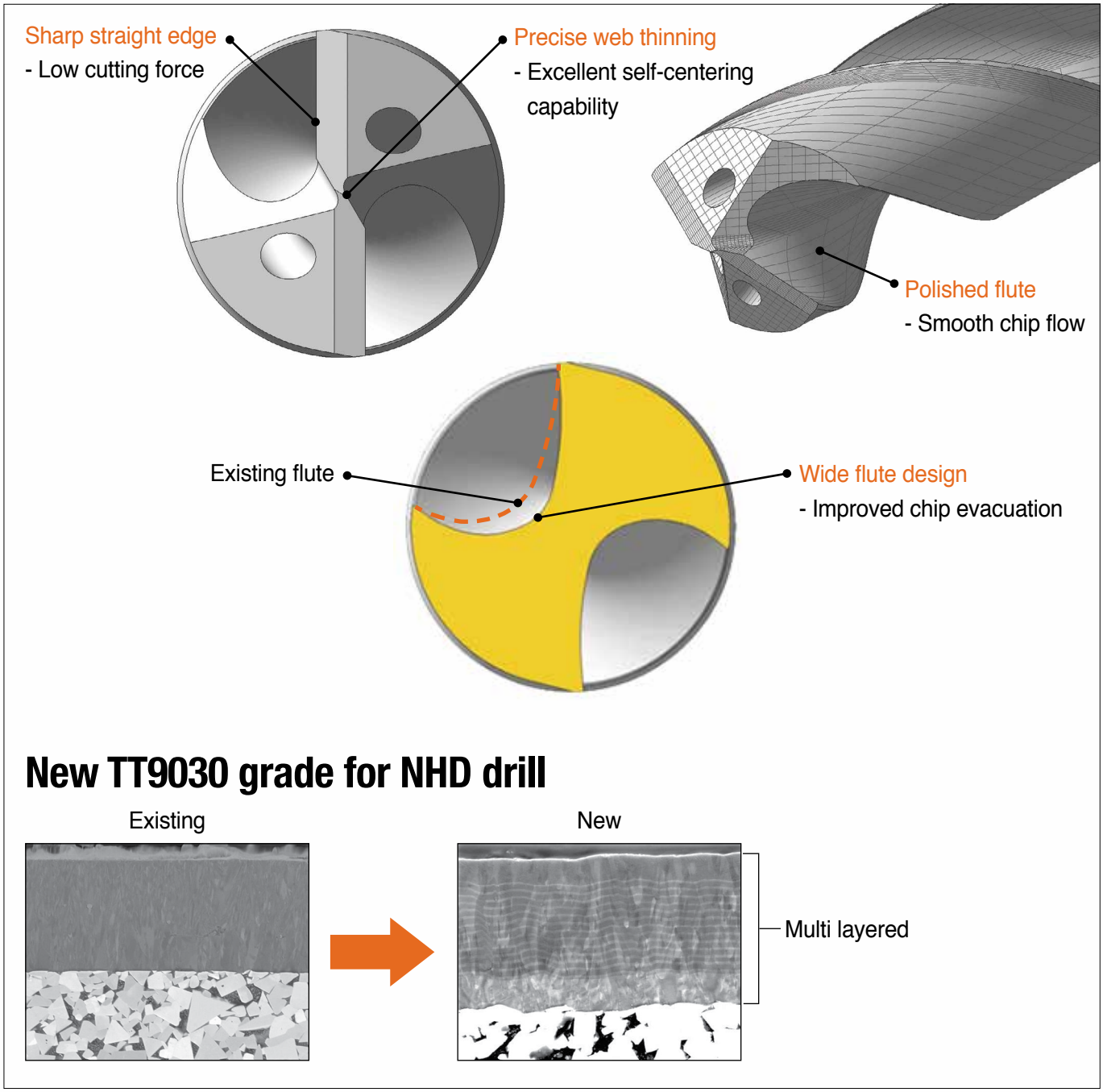
Designation system

NHD 060-035-06 PI5 TT9030

- TT9030: Grade
- PI5: P: Geometry for general purpose; I: Internal coolant(E: External coolant); 5: Drilling depth(max. 5xD)
- 06: Shank diameter(6mm)
- 035: Max. drilling depth(35mm)
- 060: Drill diameter(6.0mm)

Marking

Production No. — Drill diameter

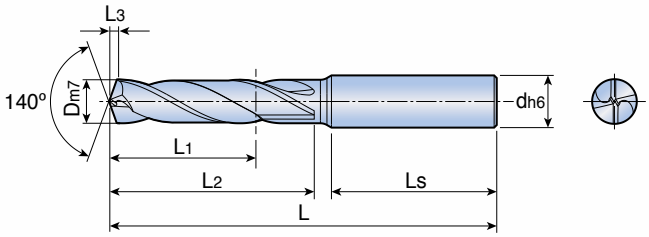


New TT9030 grade for NHD drill

NHD... PE3

Solid carbide drill

- Drilling depth: 3xdiameter
- External coolant



L1: Max. drilling depth

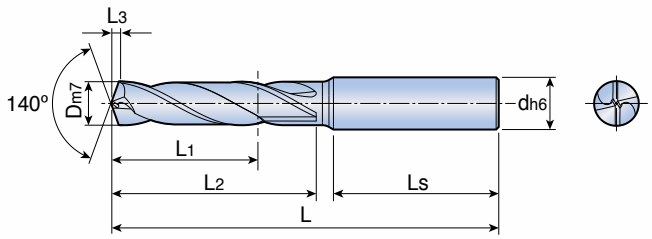
Designation	Dimension (mm)							Grade	Designation	Dimension (mm)							Grade
	D	d	L	L1	L2	L3	Ls	TT9030		D	d	L	L1	L2	L3	Ls	TT9030
NHD 030-014-06 PE3	3.0	6.0	62	14	20	0.5	34	●	NHD 065-024-08 PE3	6.5	8.0	79	24	34	1.0	36	●
031-014-06 PE3	3.1	6.0	62	14	20	0.5	34	●	066-024-08 PE3	6.6	8.0	79	24	34	1.0	36	●
032-014-06 PE3	3.2	6.0	62	14	20	0.5	34	●	067-024-08 PE3	6.7	8.0	79	24	34	1.1	36	●
033-014-06 PE3	3.3	6.0	62	14	20	0.5	34	●	068-024-08 PE3	6.8	8.0	79	24	34	1.1	36	●
034-014-06 PE3	3.4	6.0	62	14	20	0.5	34	●	069-024-08 PE3	6.9	8.0	79	24	34	1.1	36	●
035-014-06 PE3	3.5	6.0	62	14	20	0.6	34	●	070-024-08 PE3	7.0	8.0	79	24	34	1.1	36	●
036-014-06 PE3	3.6	6.0	62	14	20	0.6	34	●	071-029-08 PE3	7.1	8.0	79	29	41	1.1	36	●
037-014-06 PE3	3.7	6.0	62	14	20	0.6	34	●	072-029-08 PE3	7.2	8.0	79	29	41	1.1	36	●
038-017-06 PE3	3.8	6.0	66	17	24	0.6	35	●	073-029-08 PE3	7.3	8.0	79	29	41	1.1	36	●
039-017-06 PE3	3.9	6.0	66	17	24	0.6	35	●	074-029-08 PE3	7.4	8.0	79	29	41	1.2	36	●
040-017-06 PE3	4.0	6.0	66	17	24	0.6	35	●	075-029-08 PE3	7.5	8.0	79	29	41	1.2	36	●
041-017-06 PE3	4.1	6.0	66	17	24	0.7	35	●	076-029-08 PE3	7.6	8.0	79	29	41	1.2	36	●
042-017-06 PE3	4.2	6.0	66	17	24	0.7	35	●	077-029-08 PE3	7.7	8.0	79	29	41	1.2	36	●
043-017-06 PE3	4.3	6.0	66	17	24	0.7	35	●	078-029-08 PE3	7.8	8.0	79	29	41	1.2	36	●
044-017-06 PE3	4.4	6.0	66	17	24	0.7	35	●	079-029-08 PE3	7.9	8.0	79	29	41	1.3	36	●
045-017-06 PE3	4.5	6.0	66	17	24	0.7	35	●	080-029-08 PE3	8.0	8.0	79	29	41	1.3	36	●
046-017-06 PE3	4.6	6.0	66	17	24	0.7	35	●	081-035-10 PE3	8.1	10.0	89	35	47	1.3	40	●
047-017-06 PE3	4.7	6.0	66	17	24	0.8	35	●	082-035-10 PE3	8.2	10.0	89	35	47	1.3	40	●
048-020-06 PE3	4.8	6.0	66	20	28	0.8	36	●	083-035-10 PE3	8.3	10.0	89	35	47	1.3	40	●
049-020-06 PE3	4.9	6.0	66	20	28	0.8	36	●	084-035-10 PE3	8.4	10.0	89	35	47	1.3	40	●
050-020-06 PE3	5.0	6.0	66	20	28	0.8	36	●	085-035-10 PE3	8.5	10.0	89	35	47	1.3	40	●
051-020-06 PE3	5.1	6.0	66	20	28	0.8	36	●	086-035-10 PE3	8.6	10.0	89	35	47	1.4	40	●
052-020-06 PE3	5.2	6.0	66	20	28	0.8	36	●	087-035-10 PE3	8.7	10.0	89	35	47	1.4	40	●
053-020-06 PE3	5.3	6.0	66	20	28	0.8	36	●	088-035-10 PE3	8.8	10.0	89	35	47	1.4	40	●
054-020-06 PE3	5.4	6.0	66	20	28	0.8	36	●	089-035-10 PE3	8.9	10.0	89	35	47	1.4	40	●
055-020-06 PE3	5.5	6.0	66	20	28	0.9	36	●	090-035-10 PE3	9.0	10.0	89	35	47	1.4	40	●
056-020-06 PE3	5.6	6.0	66	20	28	0.9	36	●	091-035-10 PE3	9.1	10.0	89	35	47	1.4	40	●
057-020-06 PE3	5.7	6.0	66	20	28	0.9	36	●	092-035-10 PE3	9.2	10.0	89	35	47	1.4	40	●
058-020-06 PE3	5.8	6.0	66	20	28	0.9	36	●	093-035-10 PE3	9.3	10.0	89	35	47	1.5	40	●
059-020-06 PE3	5.9	6.0	66	20	28	0.9	36	●	094-035-10 PE3	9.4	10.0	89	35	47	1.5	40	●
060-020-06 PE3	6.0	6.0	66	20	28	0.9	36	●	095-035-10 PE3	9.5	10.0	89	35	47	1.5	40	●
061-024-08 PE3	6.1	8.0	79	24	34	1.0	36	●	096-035-10 PE3	9.6	10.0	89	35	47	1.5	40	●
062-024-08 PE3	6.2	8.0	79	24	34	1.0	36	●	097-035-10 PE3	9.7	10.0	89	35	47	1.5	40	●
063-024-08 PE3	6.3	8.0	79	24	34	1.0	36	●	098-035-10 PE3	9.8	10.0	89	35	47	1.6	40	●
064-024-08 PE3	6.4	8.0	79	24	34	1.0	36	●	099-035-10 PE3	9.9	10.0	89	35	47	1.6	40	●

●: Standard item

NHD... PE3

Solid carbide drill

- Drilling depth: 3xdiameter
- External coolant



L1: Max. drilling depth

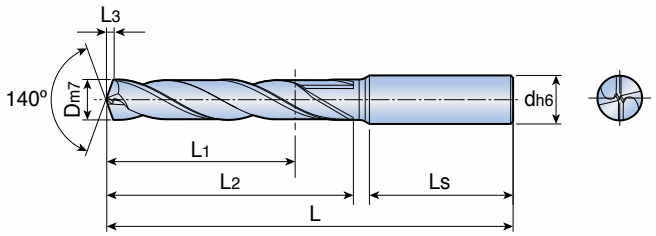
Designation	Dimension (mm)							Grade	Designation	Dimension (mm)							Grade
	D	d	L	L1	L2	L3	Ls	TT9030		D	d	L	L1	L2	L3	Ls	TT9030
NHD 100-035-10 PE3	10.0	10.0	89	35	47	1.6	40	●									
101-040-12 PE3	10.1	12.0	101	40	55	1.6	45	●									
102-040-12 PE3	10.2	12.0	101	40	55	1.6	45	●									
103-040-12 PE3	10.3	12.0	101	40	55	1.6	45	●									
104-040-12 PE3	10.4	12.0	101	40	55	1.6	45	●									
105-040-12 PE3	10.5	12.0	101	40	55	1.6	45	●									
106-040-12 PE3	10.6	12.0	101	40	55	1.7	45	●									
107-040-12 PE3	10.7	12.0	101	40	55	1.7	45	●									
108-040-12 PE3	10.8	12.0	101	40	55	1.7	45	●									
109-040-12 PE3	10.9	12.0	101	40	55	1.7	45	●									
110-040-12 PE3	11.0	12.0	101	40	55	1.7	45	●									
111-040-12 PE3	11.1	12.0	101	40	55	1.7	45	●									
112-040-12 PE3	11.2	12.0	101	40	55	1.8	45	●									
113-040-12 PE3	11.3	12.0	101	40	55	1.8	45	●									
114-040-12 PE3	11.4	12.0	101	40	55	1.8	45	●									
115-040-12 PE3	11.5	12.0	101	40	55	1.8	45	●									
116-040-12 PE3	11.6	12.0	101	40	55	1.8	45	●									
117-040-12 PE3	11.7	12.0	101	40	55	1.9	45	●									
118-040-12 PE3	11.8	12.0	101	40	55	1.9	45	●									
119-040-12 PE3	11.9	12.0	101	40	55	1.9	45	●									
120-040-12 PE3	12.0	12.0	101	40	55	1.9	45	●									

●: Standard item

NHD... PE5

Solid carbide drill

- Drilling depth: 4-5xdiameter
- External coolant



L1: Max. drilling depth

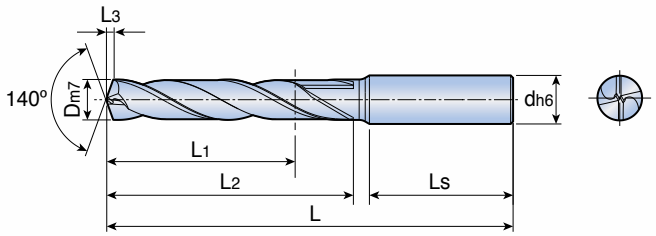
Designation	Dimension (mm)							Grade	Designation	Dimension (mm)							Grade
	D	d	L	L1	L2	L3	Ls	TT9030		D	d	L	L1	L2	L3	Ls	TT9030
NHD 030-023-06 PE5	3.0	6.0	66	23	28	0.5	34	●	NHD 065-043-08 PE5	6.5	8.0	91	43	53	1.0	36	●
031-023-06 PE5	3.1	6.0	66	23	28	0.5	34	●	066-043-08 PE5	6.6	8.0	91	43	53	1.0	36	●
032-023-06 PE5	3.2	6.0	66	23	28	0.5	34	●	067-043-08 PE5	6.7	8.0	91	43	53	1.1	36	●
033-023-06 PE5	3.3	6.0	66	23	28	0.5	34	●	068-043-08 PE5	6.8	8.0	91	43	53	1.1	36	●
034-023-06 PE5	3.4	6.0	66	23	28	0.5	34	●	069-043-08 PE5	6.9	8.0	91	43	53	1.1	36	●
035-023-06 PE5	3.5	6.0	66	23	28	0.6	34	●	070-043-08 PE5	7.0	8.0	91	43	53	1.1	36	●
036-023-06 PE5	3.6	6.0	66	23	28	0.6	34	●	071-043-08 PE5	7.1	8.0	91	43	53	1.1	36	●
037-023-06 PE5	3.7	6.0	66	23	28	0.6	34	●	072-043-08 PE5	7.2	8.0	91	43	53	1.1	36	●
038-029-06 PE5	3.8	6.0	74	29	36	0.6	35	●	073-043-08 PE5	7.3	8.0	91	43	53	1.1	36	●
039-029-06 PE5	3.9	6.0	74	29	36	0.6	35	●	074-043-08 PE5	7.4	8.0	91	43	53	1.2	36	●
040-029-06 PE5	4.0	6.0	74	29	36	0.6	35	●	075-043-08 PE5	7.5	8.0	91	43	53	1.2	36	●
041-029-06 PE5	4.1	6.0	74	29	36	0.7	35	●	076-043-08 PE5	7.6	8.0	91	43	53	1.2	36	●
042-029-06 PE5	4.2	6.0	74	29	36	0.7	35	●	077-043-08 PE5	7.7	8.0	91	43	53	1.2	36	●
043-029-06 PE5	4.3	6.0	74	29	36	0.7	35	●	078-043-08 PE5	7.8	8.0	91	43	53	1.2	36	●
044-029-06 PE5	4.4	6.0	74	29	36	0.7	35	●	079-043-08 PE5	7.9	8.0	91	43	53	1.3	36	●
045-029-06 PE5	4.5	6.0	74	29	36	0.7	35	●	080-043-08 PE5	8.0	8.0	91	43	53	1.3	36	●
046-029-06 PE5	4.6	6.0	74	29	36	0.7	35	●	081-049-10 PE5	8.1	10.0	103	49	61	1.3	40	●
047-029-06 PE5	4.7	6.0	74	29	36	0.8	35	●	082-049-10 PE5	8.2	10.0	103	49	61	1.3	40	●
048-035-06 PE5	4.8	6.0	82	35	44	0.8	36	●	083-049-10 PE5	8.3	10.0	103	49	61	1.3	40	●
049-035-06 PE5	4.9	6.0	82	35	44	0.8	36	●	084-049-10 PE5	8.4	10.0	103	49	61	1.3	40	●
050-035-06 PE5	5.0	6.0	82	35	44	0.8	36	●	085-049-10 PE5	8.5	10.0	103	49	61	1.3	40	●
051-035-06 PE5	5.1	6.0	82	35	44	0.8	36	●	086-049-10 PE5	8.6	10.0	103	49	61	1.4	40	●
052-035-06 PE5	5.2	6.0	82	35	44	0.8	36	●	087-049-10 PE5	8.7	10.0	103	49	61	1.4	40	●
053-035-06 PE5	5.3	6.0	82	35	44	0.8	36	●	088-049-10 PE5	8.8	10.0	103	49	61	1.4	40	●
054-035-06 PE5	5.4	6.0	82	35	44	0.8	36	●	089-049-10 PE5	8.9	10.0	103	49	61	1.4	40	●
055-035-06 PE5	5.5	6.0	82	35	44	0.9	36	●	090-049-10 PE5	9.0	10.0	103	49	61	1.4	40	●
056-035-06 PE5	5.6	6.0	82	35	44	0.9	36	●	091-049-10 PE5	9.1	10.0	103	49	61	1.4	40	●
057-035-06 PE5	5.7	6.0	82	35	44	0.9	36	●	092-049-10 PE5	9.2	10.0	103	49	61	1.4	40	●
058-035-06 PE5	5.8	6.0	82	35	44	0.9	36	●	093-049-10 PE5	9.3	10.0	103	49	61	1.5	40	●
059-035-06 PE5	5.9	6.0	82	35	44	0.9	36	●	094-049-10 PE5	9.4	10.0	103	49	61	1.5	40	●
060-035-06 PE5	6.0	6.0	82	35	44	0.9	36	●	095-049-10 PE5	9.5	10.0	103	49	61	1.5	40	●
061-043-08 PE5	6.1	8.0	91	43	53	1.0	36	●	096-049-10 PE5	9.6	10.0	103	49	61	1.5	40	●
062-043-08 PE5	6.2	8.0	91	43	53	1.0	36	●	097-049-10 PE5	9.7	10.0	103	49	61	1.5	40	●
063-043-08 PE5	6.3	8.0	91	43	53	1.0	36	●	098-049-10 PE5	9.8	10.0	103	49	61	1.6	40	●
064-043-08 PE5	6.4	8.0	91	43	53	1.0	36	●	099-049-10 PE5	9.9	10.0	103	49	61	1.6	40	●

●: Standard item

NHD... PE5

Solid carbide drill

- Drilling depth: 4-5xdiameter
- External coolant



L1: Max. drilling depth

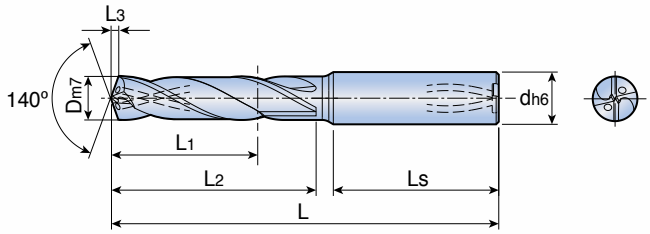
Designation	Dimension (mm)							Grade	Designation	Dimension (mm)							Grade
	D	d	L	L1	L2	L3	Ls	TT9030		D	d	L	L1	L2	L3	Ls	TT9030
NHD 100-049-10 PE5	10.0	10.0	103	49	61	1.6	40	●									
101-056-12 PE5	10.1	12.0	118	56	71	1.6	45	●									
102-056-12 PE5	10.2	12.0	118	56	71	1.6	45	●									
103-056-12 PE5	10.3	12.0	118	56	71	1.6	45	●									
104-056-12 PE5	10.4	12.0	118	56	71	1.6	45	●									
105-056-12 PE5	10.5	12.0	118	56	71	1.6	45	●									
106-056-12 PE5	10.6	12.0	118	56	71	1.7	45	●									
107-056-12 PE5	10.7	12.0	118	56	71	1.7	45	●									
108-056-12 PE5	10.8	12.0	118	56	71	1.7	45	●									
109-056-12 PE5	10.9	12.0	118	56	71	1.7	45	●									
110-056-12 PE5	11.0	12.0	118	56	71	1.7	45	●									
111-056-12 PE5	11.1	12.0	118	56	71	1.7	45	●									
112-056-12 PE5	11.2	12.0	118	56	71	1.8	45	●									
113-056-12 PE5	11.3	12.0	118	56	71	1.8	45	●									
114-056-12 PE5	11.4	12.0	118	56	71	1.8	45	●									
115-056-12 PE5	11.5	12.0	118	56	71	1.8	45	●									
116-056-12 PE5	11.6	12.0	118	56	71	1.8	45	●									
117-056-12 PE5	11.7	12.0	118	56	71	1.9	45	●									
118-056-12 PE5	11.8	12.0	118	56	71	1.9	45	●									
119-056-12 PE5	11.9	12.0	118	56	71	1.9	45	●									
120-056-12 PE5	12.0	12.0	118	56	71	1.9	45	●									

●: Standard item

NHD...PI3

Solid carbide drill

- Drilling depth: 3xdiameter
- Internal coolant



L1: Max. drilling depth

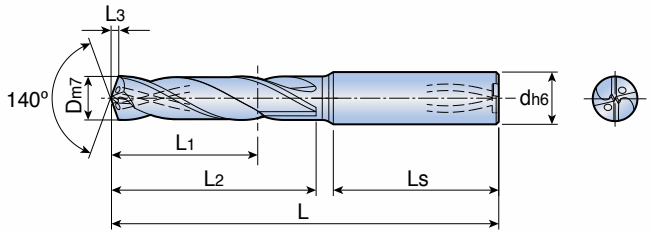
Designation	Dimension (mm)							Grade	Designation	Dimension (mm)							Grade
	D	d	L	L1	L2	L3	Ls	TT9030		D	d	L	L1	L2	L3	Ls	TT9030
NHD 030-014-06 PI3	3.0	6.0	62	14	20	0.5	34	●	NHD 065-024-08 PI3	6.5	8.0	79	24	34	1.0	36	●
031-014-06 PI3	3.1	6.0	62	14	20	0.5	34	●	066-024-08 PI3	6.6	8.0	79	24	34	1.0	36	●
032-014-06 PI3	3.2	6.0	62	14	20	0.5	34	●	067-024-08 PI3	6.7	8.0	79	24	34	1.1	36	●
033-014-06 PI3	3.3	6.0	62	14	20	0.5	34	●	068-024-08 PI3	6.8	8.0	79	24	34	1.1	36	●
034-014-06 PI3	3.4	6.0	62	14	20	0.5	34	●	069-024-08 PI3	6.9	8.0	79	24	34	1.1	36	●
035-014-06 PI3	3.5	6.0	62	14	20	0.6	34	●	070-024-08 PI3	7.0	8.0	79	24	34	1.1	36	●
036-014-06 PI3	3.6	6.0	62	14	20	0.6	34	●	071-029-08 PI3	7.1	8.0	79	29	41	1.1	36	●
037-014-06 PI3	3.7	6.0	62	14	20	0.6	34	●	072-029-08 PI3	7.2	8.0	79	29	41	1.1	36	●
038-017-06 PI3	3.8	6.0	66	17	24	0.6	35	●	073-029-08 PI3	7.3	8.0	79	29	41	1.1	36	●
039-017-06 PI3	3.9	6.0	66	17	24	0.6	35	●	074-029-08 PI3	7.4	8.0	79	29	41	1.2	36	●
040-017-06 PI3	4.0	6.0	66	17	24	0.6	35	●	075-029-08 PI3	7.5	8.0	79	29	41	1.2	36	●
041-017-06 PI3	4.1	6.0	66	17	24	0.7	35	●	076-029-08 PI3	7.6	8.0	79	29	41	1.2	36	●
042-017-06 PI3	4.2	6.0	66	17	24	0.7	35	●	077-029-08 PI3	7.7	8.0	79	29	41	1.2	36	●
043-017-06 PI3	4.3	6.0	66	17	24	0.7	35	●	078-029-08 PI3	7.8	8.0	79	29	41	1.2	36	●
044-017-06 PI3	4.4	6.0	66	17	24	0.7	35	●	079-029-08 PI3	7.9	8.0	79	29	41	1.3	36	●
045-017-06 PI3	4.5	6.0	66	17	24	0.7	35	●	080-029-08 PI3	8.0	8.0	79	29	41	1.3	36	●
046-017-06 PI3	4.6	6.0	66	17	24	0.7	35	●	081-035-10 PI3	8.1	10.0	89	35	47	1.3	40	●
047-017-06 PI3	4.7	6.0	66	17	24	0.8	35	●	082-035-10 PI3	8.2	10.0	89	35	47	1.3	40	●
048-020-06 PI3	4.8	6.0	66	20	28	0.8	36	●	083-035-10 PI3	8.3	10.0	89	35	47	1.3	40	●
049-020-06 PI3	4.9	6.0	66	20	28	0.8	36	●	084-035-10 PI3	8.4	10.0	89	35	47	1.3	40	●
050-020-06 PI3	5.0	6.0	66	20	28	0.8	36	●	085-035-10 PI3	8.5	10.0	89	35	47	1.3	40	●
051-020-06 PI3	5.1	6.0	66	20	28	0.8	36	●	086-035-10 PI3	8.6	10.0	89	35	47	1.4	40	●
052-020-06 PI3	5.2	6.0	66	20	28	0.8	36	●	087-035-10 PI3	8.7	10.0	89	35	47	1.4	40	●
053-020-06 PI3	5.3	6.0	66	20	28	0.8	36	●	088-035-10 PI3	8.8	10.0	89	35	47	1.4	40	●
054-020-06 PI3	5.4	6.0	66	20	28	0.8	36	●	089-035-10 PI3	8.9	10.0	89	35	47	1.4	40	●
055-020-06 PI3	5.5	6.0	66	20	28	0.9	36	●	090-035-10 PI3	9.0	10.0	89	35	47	1.4	40	●
056-020-06 PI3	5.6	6.0	66	20	28	0.9	36	●	091-035-10 PI3	9.1	10.0	89	35	47	1.4	40	●
057-020-06 PI3	5.7	6.0	66	20	28	0.9	36	●	092-035-10 PI3	9.2	10.0	89	35	47	1.4	40	●
058-020-06 PI3	5.8	6.0	66	20	28	0.9	36	●	093-035-10 PI3	9.3	10.0	89	35	47	1.5	40	●
059-020-06 PI3	5.9	6.0	66	20	28	0.9	36	●	094-035-10 PI3	9.4	10.0	89	35	47	1.5	40	●
060-020-06 PI3	6.0	6.0	66	20	28	0.9	36	●	095-035-10 PI3	9.5	10.0	89	35	47	1.5	40	●
061-024-08 PI3	6.1	8.0	79	24	34	1.0	36	●	096-035-10 PI3	9.6	10.0	89	35	47	1.5	40	●
062-024-08 PI3	6.2	8.0	79	24	34	1.0	36	●	097-035-10 PI3	9.7	10.0	89	35	47	1.5	40	●
063-024-08 PI3	6.3	8.0	79	24	34	1.0	36	●	098-035-10 PI3	9.8	10.0	89	35	47	1.6	40	●
064-024-08 PI3	6.4	8.0	79	24	34	1.0	36	●	099-035-10 PI3	9.9	10.0	89	35	47	1.6	40	●

●: Standard item

NHD...PI3

Solid carbide drill

- Drilling depth: 3xdiameter
- Internal coolant



L1: Max. drilling depth

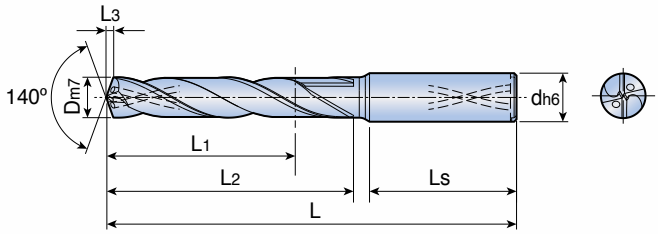
Designation	Dimension (mm)							Grade	Designation	Dimension (mm)							Grade
	D	d	L	L1	L2	L3	Ls	TT9030		D	d	L	L1	L2	L3	Ls	TT9030
NHD 100-035-10 PI3	10.0	10.0	89	35	47	1.6	40	●									
101-040-12 PI3	10.1	12.0	102	40	55	1.6	45	●									
102-040-12 PI3	10.2	12.0	102	40	55	1.6	45	●									
103-040-12 PI3	10.3	12.0	102	40	55	1.6	45	●									
104-040-12 PI3	10.4	12.0	102	40	55	1.6	45	●									
105-040-12 PI3	10.5	12.0	102	40	55	1.6	45	●									
106-040-12 PI3	10.6	12.0	102	40	55	1.7	45	●									
107-040-12 PI3	10.7	12.0	102	40	55	1.7	45	●									
108-040-12 PI3	10.8	12.0	102	40	55	1.7	45	●									
109-040-12 PI3	10.9	12.0	102	40	55	1.7	45	●									
110-040-12 PI3	11.0	12.0	102	40	55	1.7	45	●									
111-040-12 PI3	11.1	12.0	102	40	55	1.7	45	●									
112-040-12 PI3	11.2	12.0	102	40	55	1.8	45	●									
113-040-12 PI3	11.3	12.0	102	40	55	1.8	45	●									
114-040-12 PI3	11.4	12.0	102	40	55	1.8	45	●									
115-040-12 PI3	11.5	12.0	102	40	55	1.8	45	●									
116-040-12 PI3	11.6	12.0	102	40	55	1.8	45	●									
117-040-12 PI3	11.7	12.0	102	40	55	1.9	45	●									
118-040-12 PI3	11.8	12.0	102	40	55	1.9	45	●									
119-040-12 PI3	11.9	12.0	102	40	55	1.9	45	●									
120-040-12 PI3	12.0	12.0	102	40	55	1.9	45	●									

●: Standard item

NHD...PI5

Solid carbide drill

- Drilling depth: 4-5xdiameter
- Internal coolant



L1: Max. drilling depth

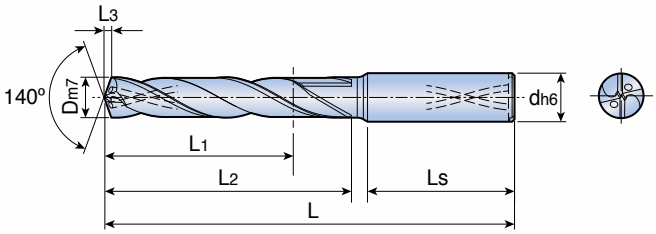
Designation	Dimension (mm)							Grade	Designation	Dimension (mm)							Grade
	D	d	L	L1	L2	L3	Ls	TT9030		D	d	L	L1	L2	L3	Ls	TT9030
NHD 030-023-06 PI5	3.0	6.0	66	23	28	0.5	34	●	NHD 065-043-08 PI5	6.5	8.0	91	43	53	1.0	36	●
031-023-06 PI5	3.1	6.0	66	23	28	0.5	34	●	066-043-08 PI5	6.6	8.0	91	43	53	1.0	36	●
032-023-06 PI5	3.2	6.0	66	23	28	0.5	34	●	067-043-08 PI5	6.7	8.0	91	43	53	1.1	36	●
033-023-06 PI5	3.3	6.0	66	23	28	0.5	34	●	068-043-08 PI5	6.8	8.0	91	43	53	1.1	36	●
034-023-06 PI5	3.4	6.0	66	23	28	0.5	34	●	069-043-08 PI5	6.9	8.0	91	43	53	1.1	36	●
035-023-06 PI5	3.5	6.0	66	23	28	0.6	34	●	070-043-08 PI5	7.0	8.0	91	43	53	1.1	36	●
036-023-06 PI5	3.6	6.0	66	23	28	0.6	34	●	071-043-08 PI5	7.1	8.0	91	43	53	1.1	36	●
037-023-06 PI5	3.7	6.0	66	23	28	0.6	34	●	072-043-08 PI5	7.2	8.0	91	43	53	1.1	36	●
038-029-06 PI5	3.8	6.0	74	29	36	0.6	35	●	073-043-08 PI5	7.3	8.0	91	43	53	1.1	36	●
039-029-06 PI5	3.9	6.0	74	29	36	0.6	35	●	074-043-08 PI5	7.4	8.0	91	43	53	1.2	36	●
040-029-06 PI5	4.0	6.0	74	29	36	0.6	35	●	075-043-08 PI5	7.5	8.0	91	43	53	1.2	36	●
041-029-06 PI5	4.1	6.0	74	29	36	0.7	35	●	076-043-08 PI5	7.6	8.0	91	43	53	1.2	36	●
042-029-06 PI5	4.2	6.0	74	29	36	0.7	35	●	077-043-08 PI5	7.7	8.0	91	43	53	1.2	36	●
043-029-06 PI5	4.3	6.0	74	29	36	0.7	35	●	078-043-08 PI5	7.8	8.0	91	43	53	1.2	36	●
044-029-06 PI5	4.4	6.0	74	29	36	0.7	35	●	079-043-08 PI5	7.9	8.0	91	43	53	1.3	36	●
045-029-06 PI5	4.5	6.0	74	29	36	0.7	35	●	080-043-08 PI5	8.0	8.0	91	43	53	1.3	36	●
046-029-06 PI5	4.6	6.0	74	29	36	0.7	35	●	081-049-10 PI5	8.1	10.0	103	49	61	1.3	40	●
047-029-06 PI5	4.7	6.0	74	29	36	0.8	35	●	082-049-10 PI5	8.2	10.0	103	49	61	1.3	40	●
048-035-06 PI5	4.8	6.0	82	35	44	0.8	36	●	083-049-10 PI5	8.3	10.0	103	49	61	1.3	40	●
049-035-06 PI5	4.9	6.0	82	35	44	0.8	36	●	084-049-10 PI5	8.4	10.0	103	49	61	1.3	40	●
050-035-06 PI5	5.0	6.0	82	35	44	0.8	36	●	085-049-10 PI5	8.5	10.0	103	49	61	1.3	40	●
051-035-06 PI5	5.1	6.0	82	35	44	0.8	36	●	086-049-10 PI5	8.6	10.0	103	49	61	1.4	40	●
052-035-06 PI5	5.2	6.0	82	35	44	0.8	36	●	087-049-10 PI5	8.7	10.0	103	49	61	1.4	40	●
053-035-06 PI5	5.3	6.0	82	35	44	0.8	36	●	088-049-10 PI5	8.8	10.0	103	49	61	1.4	40	●
054-035-06 PI5	5.4	6.0	82	35	44	0.8	36	●	089-049-10 PI5	8.9	10.0	103	49	61	1.4	40	●
055-035-06 PI5	5.5	6.0	82	35	44	0.9	36	●	090-049-10 PI5	9.0	10.0	103	49	61	1.4	40	●
056-035-06 PI5	5.6	6.0	82	35	44	0.9	36	●	091-049-10 PI5	9.1	10.0	103	49	61	1.4	40	●
057-035-06 PI5	5.7	6.0	82	35	44	0.9	36	●	092-049-10 PI5	9.2	10.0	103	49	61	1.4	40	●
058-035-06 PI5	5.8	6.0	82	35	44	0.9	36	●	093-049-10 PI5	9.3	10.0	103	49	61	1.5	40	●
059-035-06 PI5	5.9	6.0	82	35	44	0.9	36	●	094-049-10 PI5	9.4	10.0	103	49	61	1.5	40	●
060-035-06 PI5	6.0	6.0	82	35	44	0.9	36	●	095-049-10 PI5	9.5	10.0	103	49	61	1.5	40	●
061-043-08 PI5	6.1	8.0	91	43	53	1.0	36	●	096-049-10 PI5	9.6	10.0	103	49	61	1.5	40	●
062-043-08 PI5	6.2	8.0	91	43	53	1.0	36	●	097-049-10 PI5	9.7	10.0	103	49	61	1.5	40	●
063-043-08 PI5	6.3	8.0	91	43	53	1.0	36	●	098-049-10 PI5	9.8	10.0	103	49	61	1.6	40	●
064-043-08 PI5	6.4	8.0	91	43	53	1.0	36	●	099-049-10 PI5	9.9	10.0	103	49	61	1.6	40	●

●: Standard item

NHD...PI5

Solid carbide drill

- Drilling depth: 4-5xdiameter
- Internal coolant



L1: Max. drilling depth

Designation	Dimension (mm)							Grade	Designation	Dimension (mm)							Grade
	D	d	L	L1	L2	L3	Ls	TT9030		D	d	L	L1	L2	L3	Ls	TT9030
NHD 100-049-10 PI5	10.0	10.0	103	49	61	1.6	40	●									
101-056-12 PI5	10.1	12.0	118	56	71	1.6	45	●									
102-056-12 PI5	10.2	12.0	118	56	71	1.6	45	●									
103-056-12 PI5	10.3	12.0	118	56	71	1.6	45	●									
104-056-12 PI5	10.4	12.0	118	56	71	1.6	45	●									
105-056-12 PI5	10.5	12.0	118	56	71	1.6	45	●									
106-056-12 PI5	10.6	12.0	118	56	71	1.7	45	●									
107-056-12 PI5	10.7	12.0	118	56	71	1.7	45	●									
108-056-12 PI5	10.8	12.0	118	56	71	1.7	45	●									
109-056-12 PI5	10.9	12.0	118	56	71	1.7	45	●									
110-056-12 PI5	11.0	12.0	118	56	71	1.7	45	●									
111-056-12 PI5	11.1	12.0	118	56	71	1.7	45	●									
112-056-12 PI5	11.2	12.0	118	56	71	1.8	45	●									
113-056-12 PI5	11.3	12.0	118	56	71	1.8	45	●									
114-056-12 PI5	11.4	12.0	118	56	71	1.8	45	●									
115-056-12 PI5	11.5	12.0	118	56	71	1.8	45	●									
116-056-12 PI5	11.6	12.0	118	56	71	1.8	45	●									
117-056-12 PI5	11.7	12.0	118	56	71	1.9	45	●									
118-056-12 PI5	11.8	12.0	118	56	71	1.9	45	●									
119-056-12 PI5	11.9	12.0	118	56	71	1.9	45	●									
120-056-12 PI5	12.0	12.0	118	56	71	1.9	45	●									

●: Standard item

Recommended cutting conditions

ISO	Material		Condition	Tensile strength (N/mm²)	Hardness HB	Material No.	Cutting speed Vc (m/min)	Feed (mm/rev) vs. drill diameter		
								Ø3 - Ø5	Ø5.1 - Ø8	Ø8.1 - Ø12
P	Non-alloy steel, cast steel, free cutting steel	<0.25%C	Annealed	420	125	1	80-120	0.10-0.20	0.15-0.25	0.20-0.30
		>=0.25%C	Annealed	650	190	2	80-110	0.10-0.20	0.15-0.25	0.20-0.30
		<0.55%C	Quenched and tempered	850	250	3	70-100	0.10-0.20	0.15-0.25	0.20-0.30
		>=0.55%C	Annealed	750	220	4	70-100	0.10-0.20	0.15-0.25	0.20-0.30
			Quenched and tempered	1000	300	5	70-100	0.10-0.20	0.15-0.25	0.20-0.30
	Low alloy steel and cast steel (Less than 5% of alloying elements)		Annealed	600	200	6	70-90	0.10-0.20	0.15-0.25	0.20-0.30
			Quenched and tempered	930	275	7	70-90	0.10-0.20	0.15-0.25	0.20-0.30
				1000	300	8	50-80	0.10-0.20	0.15-0.25	0.20-0.30
				1200	350	9	40-70	0.10-0.20	0.15-0.25	0.20-0.30
	High alloy steel, cast steel and tool steel		Annealed	680	200	10	50-80	0.08-0.18	0.10-0.20	0.15-0.25
			Quenched and tempered	1100	325	11	40-70	0.08-0.18	0.10-0.20	0.15-0.25
M	Stainless steel and cast steel		Ferritic / martensitic	680	200	12	30-60	0.06-0.12	0.10-0.15	0.12-0.18
			Martensitic	820	240	13	30-60	0.06-0.12	0.10-0.15	0.12-0.18
			Austenitic	600	180	14	30-60	0.06-0.12	0.10-0.15	0.12-0.18
K	Gray cast iron (GG)		Ferritic		160	15	65-80	0.10-0.20	0.15-0.25	0.20-0.30
			Pearlitic		250	16	65-80	0.10-0.20	0.15-0.25	0.20-0.30
	Cast iron nodular (GGG)		Ferritic		180	17	85-105	0.10-0.20	0.15-0.25	0.20-0.30
			Pearlitic		260	18	75-90	0.10-0.20	0.15-0.25	0.20-0.30
	Malleable cast iron		Ferritic		130	19	65-80	0.10-0.20	0.15-0.25	0.20-0.30
			Pearlitic		230	20	65-80	0.10-0.20	0.15-0.25	0.20-0.30
N	Aluminum - Wrought alloy		Not cureable		60	21	70-200	0.10-0.25	0.15-0.35	0.25-0.45
			Cured		100	22	70-200	0.10-0.25	0.15-0.35	0.25-0.45
	Aluminum-cast, alloyed	<=12% Si	Not cureable		75	23	70-200	0.10-0.25	0.15-0.35	0.25-0.45
			Cured		90	24	70-200	0.10-0.25	0.15-0.35	0.25-0.45
		>12% Si	High temp.		130	25	70-150	0.10-0.25	0.15-0.35	0.25-0.45
	Copper alloys	>1% Pb	Free cutting		110	26	70-200	0.08-0.18	0.15-0.25	0.20-0.35
			Brass		90	27	70-200	0.08-0.18	0.15-0.25	0.20-0.35
			Electrolitic copper		100	28	70-200	0.08-0.18	0.15-0.25	0.20-0.35
	Non-metallic		Duroplastics, fiber plastics			29				
			Hard rubber			30				
S	High temp. alloys	Fe based	Annealed		200	31	15-40	0.02-0.08	0.04-0.10	0.06-0.12
			Cured		280	32	15-40	0.02-0.08	0.04-0.10	0.06-0.12
		Ni or Co based	Annealed		250	33	15-40	0.02-0.08	0.04-0.10	0.06-0.12
			Cured		350	34	15-40	0.02-0.08	0.04-0.10	0.06-0.12
			Cast		320	35	15-40	0.02-0.08	0.04-0.10	0.06-0.12
	Titanium, Ti alloys			Rm 400		36				
			Alpha+beta alloys cured	Rm 1050		37				
H	Hardened steel		Hardened		55HRC	38	10-40	0.02-0.08	0.04-0.10	0.06-0.12
			Hardened		60HRC	39	10-40	0.02-0.08	0.04-0.10	0.06-0.12
	Chilled cast iron		Cast		400	40				
	Cast iron nodular		Hardened		55HRC	41				

Steel Stainless steel Cast iron Nonferrous High temp. alloys Hardened steel