

Tiltable and telescopic steering columns type OTP-TT

HN.22.F1.02 is new					
Introduction		To meet market demands for more ergonomic and comfortable conditions for the drivers of vehicles with hydrostatic steering, Danfoss is introducing a range of adjustable steering columns to supplement the present range. Type OTP-TT steering columns are tiltable and telescopic.			
Product program	 Standard versions (see page 2). Special versions (see page 6). Customer-specific versions (see page 4) 				
Application and function	OTP-TT steering columns are for use with Danfoss OSPB, OSPC and OSPL steering units and torque amplifier TAD. The lower part of the column contains a telescopic section and the upper part a facility for adjusting the tilt-angle. There is one operating handle for both functions. The telescopic length is 80 mm and adjustment is infinitely variable. The tilt can be adjusted in ten steps of 4°, i.e. a total of 40° (-16° + 24°)	By spring release the upper part tilts away from the driver. Operating force (mean value) measured 215 mm from the fixpoint of the operating handle is 25 N for tilt adjustment and 60 N for telescopic adjustment.			

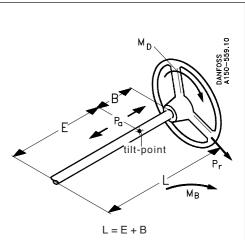
Standard range installation	The length of the shaft (H) end on OTP-TT standard programme steering columns is that a 4 mm intermediate plate for mounting purpo- se must be used between steering column and Danfoss steering unit. The intermediate plate must have four ø12 mm plain holes for mounting screws and ø44.5 centre holes. The steering column must be installed perpendicular to and centered cor- ractive on the steering unit.	The tightening torque for mounting screws is max. 3 daNm. The recommended tightening torque for the steering shaft nut is 4 ±0.5 daNm.		
	rectly on the steering unit. (See Danfoss instruction no. HI.21.B2.52).			
Load on steering column	Symbols: L (m): axial length between mounting			

surface and steering wheel P_r (daN): radial force on steering wheel P_a (daN): axial force on steering wheel M_D (daNm): turning torque M_B (daNm): bending moment on steering $\operatorname{column} M_{B} = P_{r} \times L$

The steering column must be supported when E exceeds 400 mm. (B max. 134 mm). The following max. permissible values must not be exceeded:

 M_D max. 24 daNm 20 daNm M_B max. Pa max. 100 daN (against end stop) *

* Teleskope friction until $P_a = 70 \pm 10 \text{ daN}$



Code numbers and weights, standard range

Description	Type designation	Code no. *)	Steering shaft end (A)	Length B	Length**) E	Weight kg
Tilt and telescopic adj.	OTP-TT 406	150Z0001	A1	89	317	5,4
Tilt and telescopic adj.	OTP-TT 500	150Z0003	A1	134	366	5,6
Tilt and telescopic adj.	OTP-TT 600	150Z0004	A1	134	466	5,8
Tilt and telescopic adj.	OTP-TT 700	150Z0005	A1	134	566	6,0

*) All with tilt-angle D₁ (See page 6).
 **) The E-measure applies to retracted condition. Fully extended add 80 mm.

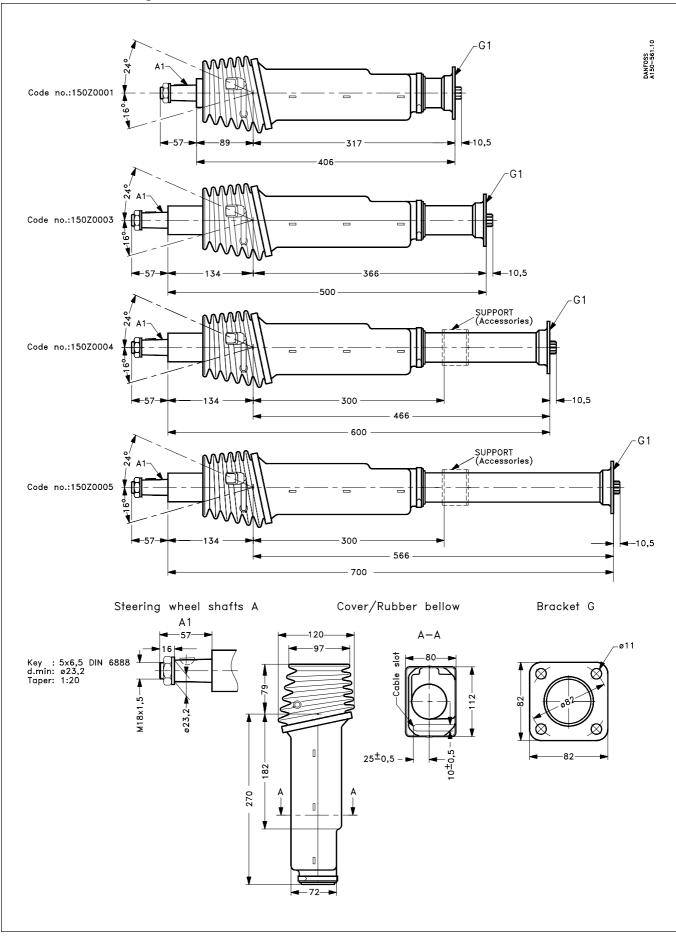
Surface treatment Material Material

: - Zink chromate (yellow)

: - Cover, black plastic (ABS Terluran 967 K)

: - Bellows, black rubber (EPDM 50 - 60 IRHD)

Dimensions standard range



Customer-specified versions

The following information must accom	pany enquiries for special versions:
Customer:E	Date: Signature:
Туре:	Adjustable tilt and telescopic
	Telescopic
	Adjustable tilt
¹⁾ Steering shaft type: A1 A2	A3 🗌 A4 🔲 A5 🗌 A6 🗔
Upper part: B1 B2	B3
Length:	B: mm B _{min.} 89 mm B _{max.} 250 mm
Length:	E: mm E _{min.} 317 mm E _{max.} 600 mm
³⁾ Bracket:	G1 🗌 G3 🗌
³⁾ Tilt stop angle:	D1 D2 D
Shaft end length:	H: mm (H _{min.} = 6,5 mm) ²⁾
Cover: Cover prepared for wire:	yes no yes no
Rubber bellow:	yes no
Annual requirements (min 100 -	pcs) Pcs:

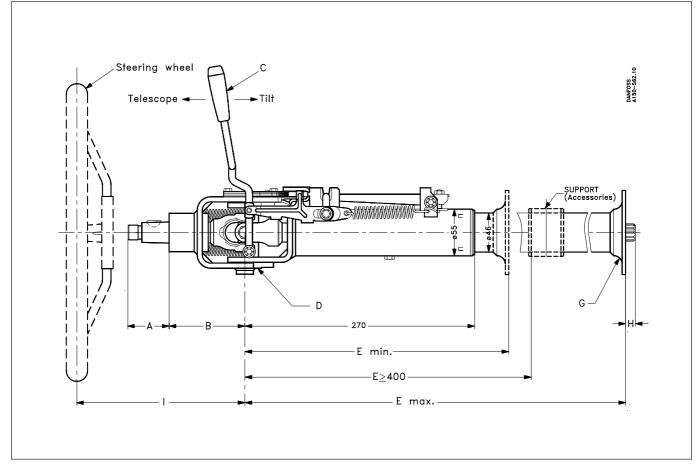
1) Splined shaft for A3, A4 and A5, see Danfoss steering unit catalogue, HK.20.B1.02.

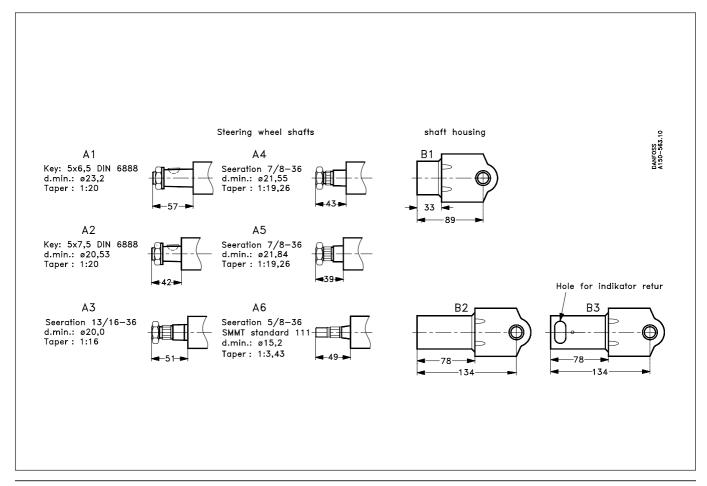
2) $H_{min.}$ = 6,5 mm applies tor OTP-TT fitted direct on the Danfoss steering unit.

3) See drawings page 6.

Note that mounting is different from standard range if H-dimension diviates from 10,5 mm.

Dimensions of customer-specified versions





Code numbers and

weights	of othe	r versions
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Description	Type designation	Code no.*)	Steering- shaft end (A)	Length B mm	Length E mm	Tilt stop angle	Weight kg	Bracket
Tilt and telescopic adj.	OTP-TT 406	150Z0002	A6	89	317	D1	5,4	G3
Tilt and telescopic adj.	OTP-TT 670	150Z0006	A1	134	536	D2	5,9	G2

Dimensions other versions

