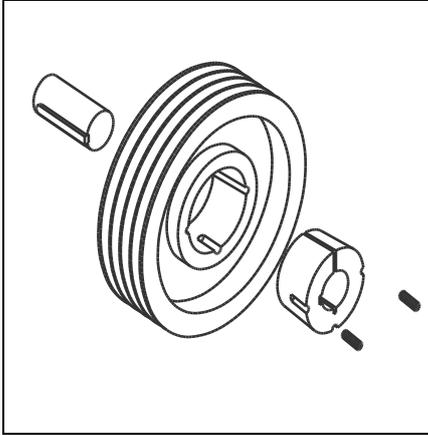


Standard safety rules should be observed

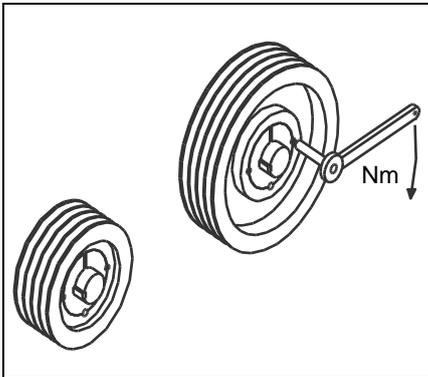
Switch off the current before carrying out work at the transmission unit. Make sure that the transmission unit cannot be started while work is being carried out. Follow the manufacturer's instructions.



V-belt pulleys with tapered bushings

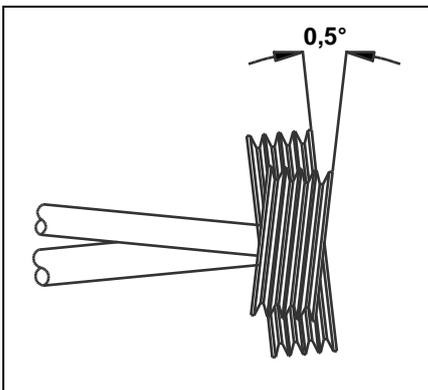
Inspect all components for damage before mounting.

- 1) Clean all finished surfaces and wipe off any grease.
- 2) Hang the pulley over the shaft and then mount the bushing.
- 3) Turn the pulley until the threaded holes in the pulley are aligned with the smooth holes in the bushing.
- 4) Oil the Allen screws before insertion, and tighten so that the pulley still can be moved on the shaft.
- 5) Correct centering of bushing and pulley requires tightening of the Allen screws several times for which purpose a torque wrench is very useful.
- 6) Do not tighten to a higher torque moment value than stated for the relevant bushing. It shall be possible to dismount the pulleys without using force.



TB tapered bushings, Allen screws and torque moments

Bushing No.	Allen key	No. of screws	Torque moment	
			max. Nm	min. Nm
TB 1008, 1108	3	2	4,2	3,0
TB 1210, 1215, 1310, 1610, 1615	5	2	15,0	11,5
TB 2012	6	2	23,0	17,0
TB 2517	6	2	36,0	27,0
TB 3020, 3030	8	2	67,0	50,0
TB 3525, 3535	10	3	85,0	64,0
TB 4030, 4040	12	3	128,0	96,0
TB 4535, 4545	14	3	144,0	108,0
TB 5040, 5050	14	3	203,0	152,0

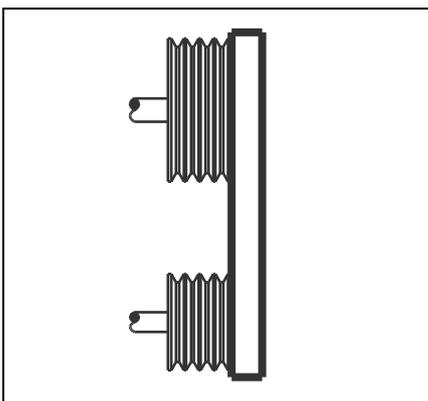


Horizontal alignment and inspection of shafts

Align motor and system shaft. A precision spirit level may be useful.

Note:

Maximum permissible flush error at this level is 0.5°



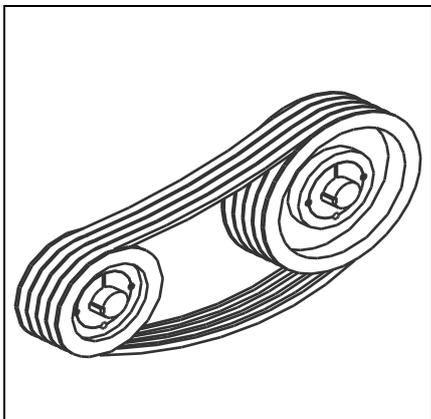
Vertical alignment and inspection of pulleys

Align the pulleys until the outsides/insides of the pulleys flush according to the straightedge.

Note:

Check the alignment after tightening of bushings and make corrections until proper alignment has been obtained.

Proper alignment is of vital importance to transmission unit life and efficiency.



Mounting of V-belts

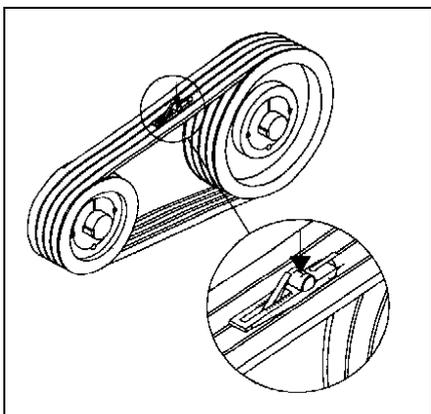
Place the V-belts loosely on the pulley grooves. Using force will damage the power transmitting cords. Good contact between the V-belts and pulley grooves is important. Remove oil and dirt from the pulley grooves.

Note:

Using force when mounting V-belts will often reduce the life to a few weeks after which a new replacement will be required!

Do not mix old and new belts.

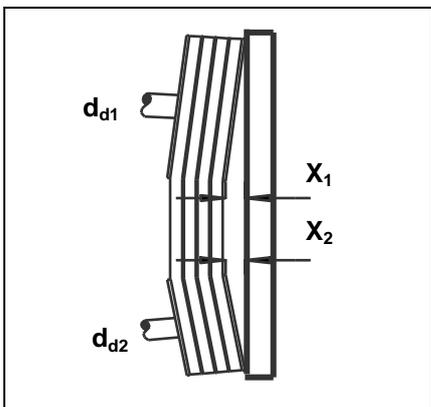
Worn pulleys should be replaced in order to ensure proper operation of the transmission unit and optimal life of the V-belt.



Tensioning of V-belts

Correct belt tension is decisive for the life of the transmission unit.

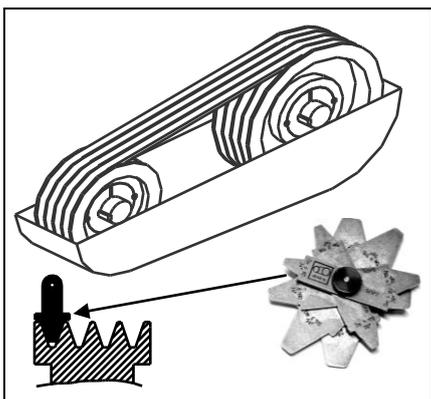
1. Shift the motor in parallel until the correct T_{min}/T_{max} has been obtained.
2. Rotate the transmission unit a few times before checking the T_{min}/T_{max} value. Make adjustments until the T_{min}/T_{max} value is correct.
3. Check the belt tension for the first time after 0.5 – 4 hours' operation at full load.
4. Subsequent checks should be made at regular intervals, and the values recommended should be kept.



Maximum permissible flush error $\approx 1/4^\circ$

After correct tensioning it cannot be taken for granted that the belts flush. The X max. values stated for flush errors at this level should not be exceeded.

Pulley diameter d_{d1} / d_{d2}	X_1 / X_2 max	
	d_{d1} / d_{d2}	X_1 / X_2 max
}	112 mm	0.5 mm
	224 mm	1.0 mm
	450 mm	2.0 mm
	630 mm	3.0 mm
	900 mm	4.0 mm
	1100 mm	5.0 mm
	1400 mm	6.0 mm
	1600 mm	7.0 mm



Inspection/service of the transmission unit

1. Check the belt tension at regular intervals, e.g. every six months. Retension the belts as required.
2. Check the pulleys for wear at regular intervals, e.g. once a year, and always before new belts are mounted. Replace worn pulleys.
3. Profiles and grooves.

Replacing of pulleys with TB tapered bushings

1. See Mounting / Dismounting

Belt Tension Values

Contitech V-Belts

Narrow Belts (DIN 7753)

BELT SECTION	Small Pulley (ϕ mm)	STATIC TENSION T_{MAX} (N)		STATIC TENSION T_{MAX} (N)	
		Conti-V (Wrapped)		Conti-V Advance (Wrapped) Conti V FO Pioneer (RawEdge Cog)	
		New Belt	Used Belt	New Belt	Used Belt
XPZ/SPZ 3V/3VX	≤ 71	200	150	250	200
	$>71 \leq 90$	250	200	300	250
	$>90 \leq 125$	350	250	400	300
	$>125^*$	400	300	450	350
XPA/SPA	≤ 100	350	250	400	300
	$>100 \leq 140$	400	300	500	400
	$>140 \leq 200$	500	400	600	450
	$>200^*$	600	500	700	550
XPB/SPB 5V/5VX	≤ 160	650	500	800	600
	$>160 \leq 224$	700	550	900	700
	$>224 \leq 355$	900	700	1100	900
	$>355^*$	1100	900	1200	1000
XPC/SPC	≤ 250	1000	800	1400	1250
	$>250 \leq 355$	1400	1100	1600	1400
	$>355 \leq 560$	1800	1400	2000	1700
	$>560^*$	2100	1700	2300	1900

Classical Belts (DIN 2215)

BELT SECTION	Small Pulley (ϕ mm)	STATIC TENSION T_{MAX} (N)		STATIC TENSION T_{MAX} (N)	
		Conti-V (Wrapped)		Conti-V FO (RawEdge Cog)	
		New Belts	Used Belts	New Belts	Used Belts
ZX/Z	<50	90	70	120	90
	$>50 <71$	120	90	140	110
	$>71 <100$	140	110	160	130
	>100	160	130	180	150
AX/A	<80	150	110	200	150
	$>80 <100$	200	150	250	200
	$>100 <132$	300	250	400	300
	>132	400	350	500	400
BX/B	<125	300	250	450	350
	$>125 <160$	400	300	500	400
	$>160 <200$	500	400	600	450
	>200	600	500	700	550
CX/C	<200	700	500	800	600
	$>200 <250$	800	600	900	700
	$>250 <355$	900	700	1000	800
	>355	1000	800	1100	900

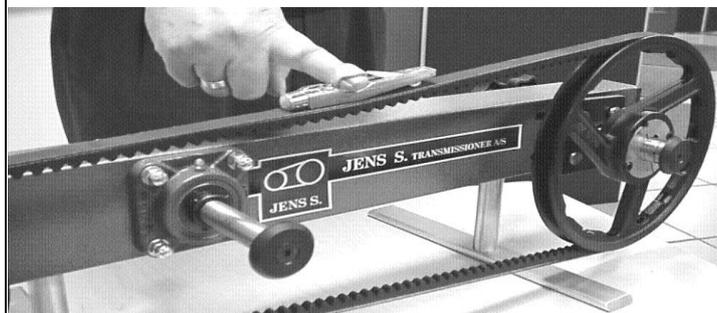
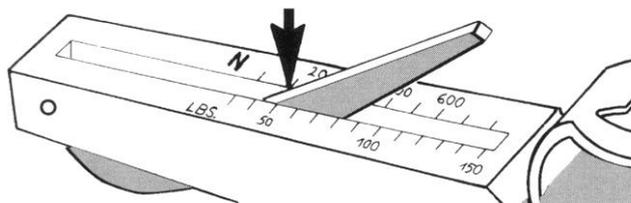
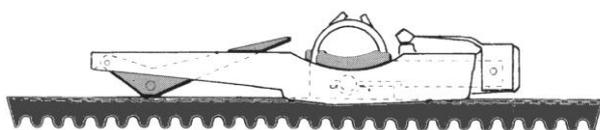
OPERATING INSTRUCTIONS

Tension testers, types I, II and III:

Type I Range: 150 – 600 N / 15 - 60 kg

Type II Range: 500 – 1400 N / 50 - 140 kg

Type III Range: 1300 – 3100 N / 130 - 310 kg



Operating Instructions:

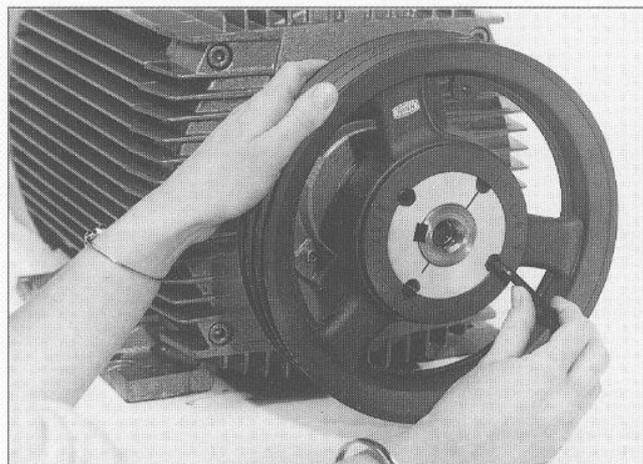
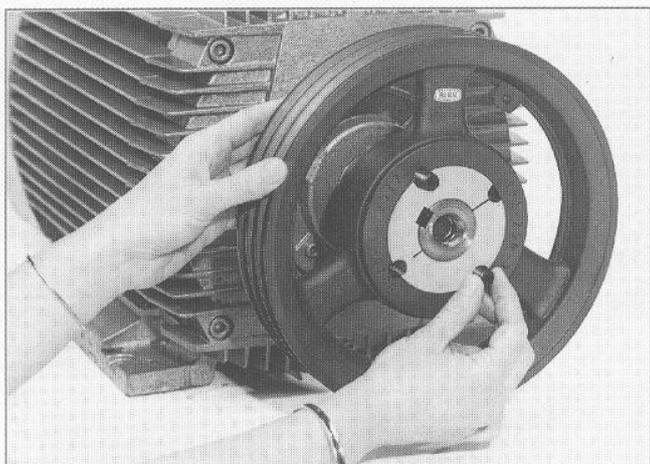
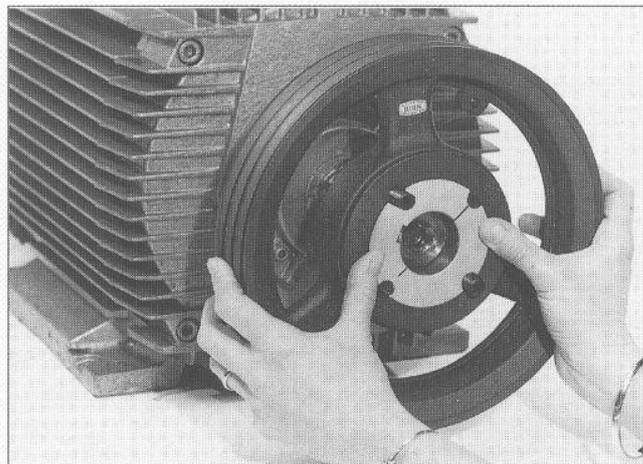
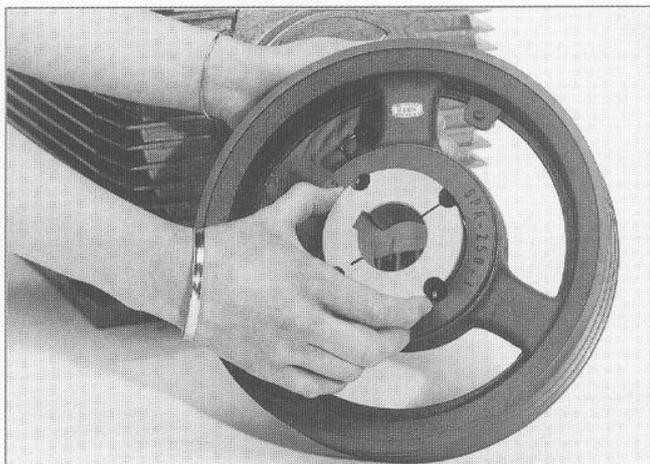
1. Turn the transmission unit a few times so that the tension is distributed in the entire belt before measuring.
2. Place the tension tester on the belt between the pulleys and press the pointer down into the scale range.
3. The tension tester should be operated only with one finger. (Fig. A, B or C)
4. Activate the tension tester by means of a slowly rising pressure until a click is heard/felt. Then stop pressing.
5. Remove the tension tester from the belt and take readings in the intersection point between scale and front edge of pointer.
6. Adjust the belt tension until the measured and stated values are identical. Each time the belt tension has been adjusted the transmission unit should be turned a few times.

Frequency Meter

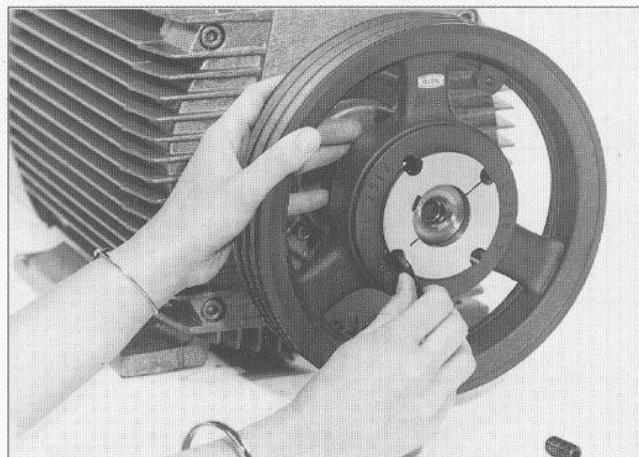
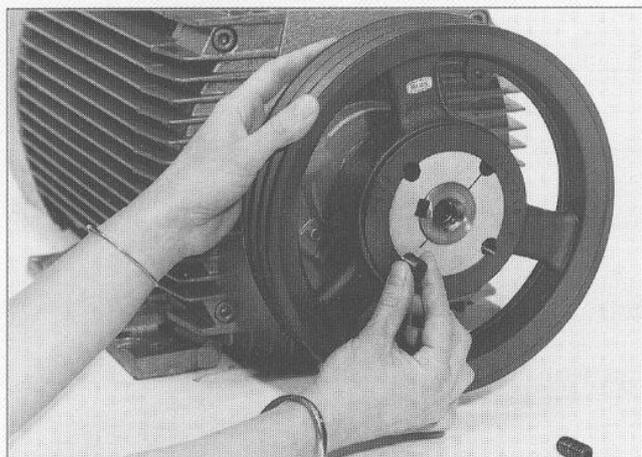
1. Especially for measuring of timing belts and Poly-V belts.
2. 2 different types are available.

Mounting and Service Instructions

MOUNTING



DISMOUNTING



	V-belts break after few hours' operation	λ								
	Fractures or cracks in the bottom part of the V-belt		λ							
	Extremely heavy vibrations in the transmission unit			λ						
	V-belts cannot be tensioned sufficiently				λ					
	V-belts turn in the groove					λ				
	Unusual wear of the flanks						λ			
	Unusual noise level							λ		
	V-belts dissolved / flanks sticky								λ	
	Extreme belt extension									λ

POSSIBLE CAUSES	Incorrect mounting of belts	λ								
	Foreign matters in the pulley grooves	λ								
	Transmission unit overloaded	λ			λ		λ			
	Transmission unit has been blocked	λ								
	Minimum pulley diameter has not been observed		λ			λ				
	Extremely heavy effect of heat	λ								
	Extremely heavy effect of cold	λ								
	Extremely heavy slippage	λ								
	Chemical effect	λ								
	Shaft distance is too long in proportion to the pulley diameters			λ						
	Heavy shock load			λ						
	Too low belt tension			λ		λ	λ	λ		
	The pulleys are not dynamically balanced			λ						
	The possibilities of adjusting the transmission unit are limited				λ					
	The belts mounted are of improper length				λ					
	The pulleys do not flush					λ	λ	λ		
	Defect pulley grooves					λ				λ
	Extremely heavy vibrations					λ				
	Too high starting torque						λ			
	Improper pulley groove						λ			
Belts make contact with or hit belt guard						λ				
Constantly affected by oil, grease or other chemicals								λ		
New and old belts in the same transmission unit									λ	
Belts of different brands in the same transmission unit									λ	

SOLUTIONS	V-belts should be mounted loosely on the pulleys as stated	λ								
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Improve guarding of the transmission unit	λ	λ			λ			λ	
Check calculation with facts	λ	λ	λ	λ			λ	λ	
Find the cause of blocking	λ								
Minimum pulley diameter should be observed		λ					λ		
The transmission unit should run warm before it is loaded		λ							
Insert KB power belt			λ		λ				
Check belt tension/retension			λ		λ	λ	λ		
Balance the pulleys at the actual rpm			λ						
Replace with belts of correct length				λ					
Check alignment according to instructions					λ	λ			
Replace pulleys					λ	λ			λ
Replace with pulleys of correct profile						λ			
Remove the belt guard so that the transmission unit runs freely						λ			
Clean pulleys before mounting of new belts								λ	
Replace all belts									λ
Only use belts of same brand									λ
Contact nearest JENS-S expert		λ	λ	λ					