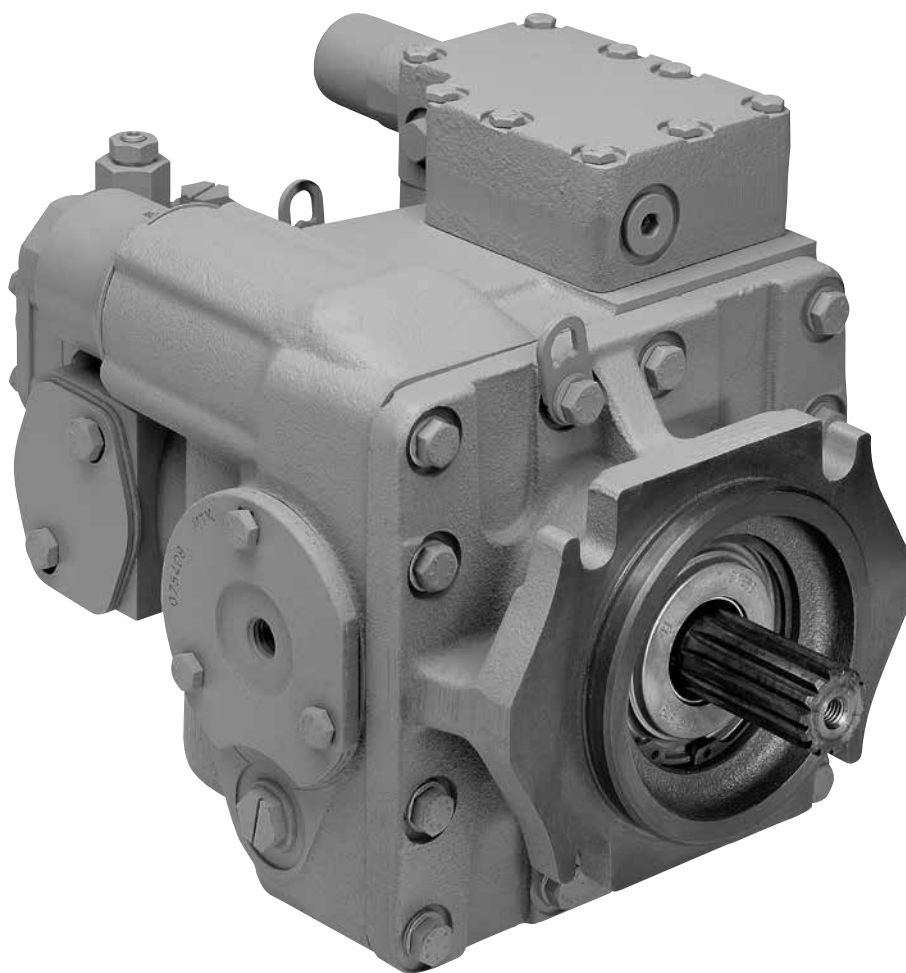


PISTON PUMPS AND MOTORS

Series 20
Size 33/52/70/89/112/166/227/334



General Description
Introduction

Danfoss a world leader in hydraulic power systems has developed a family of axial piston pumps.

Description

Danfoss axial piston variable displacement pumps are of swash plate design with variable flow capability suitable for hydrostatic transmissions with closed loop circuit. Tilting the swash plate to the opposite side of the neutral or zero displacement position reverses flow direction.

Danfoss axial piston variable displacement pumps are well engineered and easy to handle. The full-length shaft with a highly efficient tapered roller bearing arrangement offers a high loading capacity for external radical forces. The hydro-mechanical servo displacement control maintains the selected swash plate position and hence pumps displacement. Upon release of the control handle, the swash plate automatically returns to zero position and the flow reduces to zero. High case pressures can be achieved without leakage even at the lowest temperatures by using suitable shaft seals. The servo valve arrangement offers the facility to incorporate function regulators and remote control systems. Axial piston units are designed for easy servicing. Complete dismantling and reassembly can be carried out with standard hand tools, and all components or sub-assemblies are replaceable. Axial piston variable displacement pumps of the Danfoss pattern are made by licensed producers worldwide, providing consistent service and fully interchangeable parts.

Typical markets

- Industrial
- Mining
- Transit Mixer
- Utility Vehicles



VARIABLE DISPLACEMENT AXIAL PISTON PUMPS

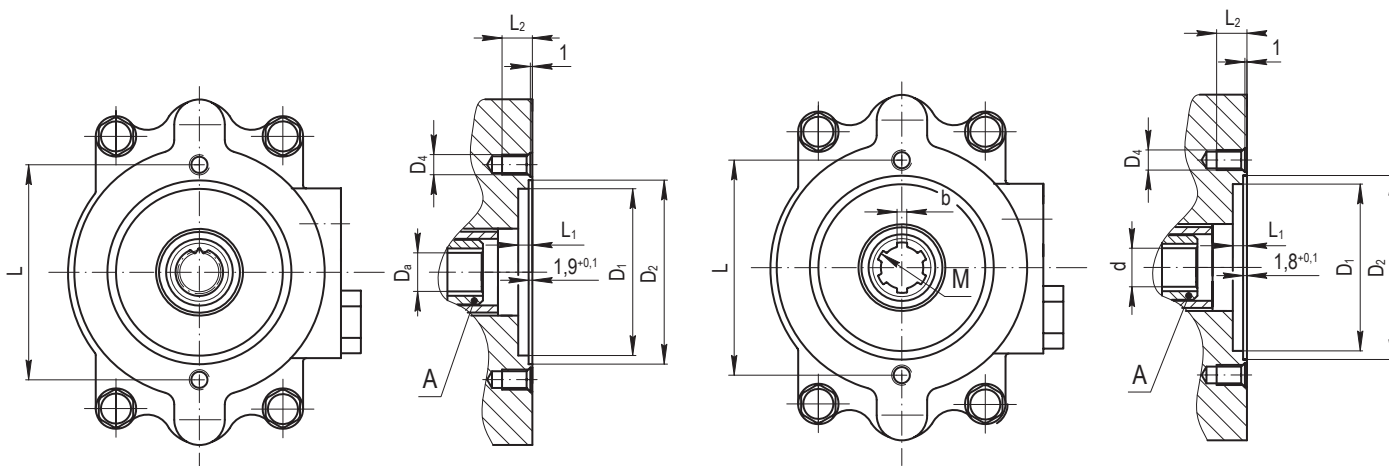
TECHNICAL CHARACTERISTICS

Displacement code		33	52	71	90	112
Displacement max	ccm	33,3	51,6	69,8	89,0	110,8
Maximum flow	l/min	113,5	204	275,8	314,5	391,6
Maximum pressure in high pressure line	bar	450				
Rated pressure in high pressure line	bar	420				
Maximum drain pressure	bar	2,5				
Maximum speed	min ⁻¹	3590	4160		3720	
Minimum speed	min ⁻¹	500				
Rated speed	min ⁻¹	2500				
Maximum swashplate angle	Degr	±18				
Rated power	kW	60	93	125,9	160,5	199,8
Weight (without fluid)	kg	51	61	69	85	

Frame size	Dimensions [mm]											
	L	L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇	L ₈	L ₉	L ₁₀	L ₁₁
SPVH33	340	270	224	100	93,7	47,6	16	284	58	55,6	81	62
SPVH52	364	276	244	106	105	48		300	71	65,5	87,3	68,07
SPVH71	381	311	259	111	119			314	83	68	85,8	71,4
SPVH90	394	320	270	118	127	49		17,5	327	91	77,8	95,25
SPVH112												

MOUNTING DIMENSIONS FOR TANDEM WITH GEAR PUMPS

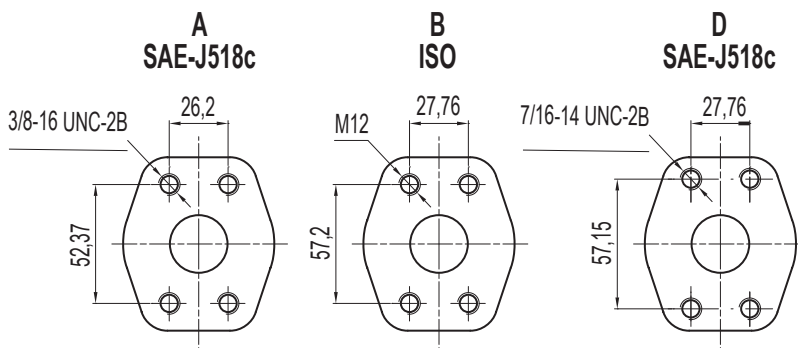
Code	Z	Dimensions [mm]									
		D_a	M	d	b	D_1 , SAE J744c	D_2	L	L_1	D_4	L_2
1	9	$12,926^{+0,11}$	D-6×13×16H9×3,5D10	-	-	$82,57^{+0,04}$	$91^{+0,22}$	106,4	7,5	M10-7H	15 min
2	11	$16,017^{+0,11}$		-	-						
3	-	-		$13^{+0,11}$	$3,5^{+0,078}_{+0,030}$						
4	13	$19,133^{+0,11}$	D-6×18×22H9×5D9	-	-	$101,62^{+0,04}$	$110^{+0,22}$	146,1	10	M12-7H	25 min
5	14	$28^{+0,13}$		-	-						
6	-	-		$18^{+0,11}$	$5^{+0,078}_{+0,030}$						



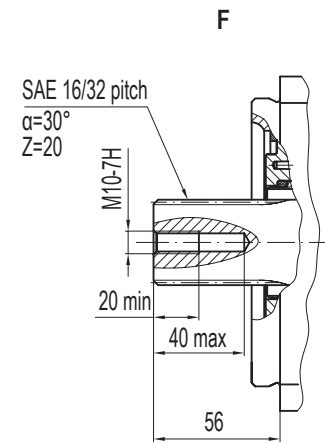
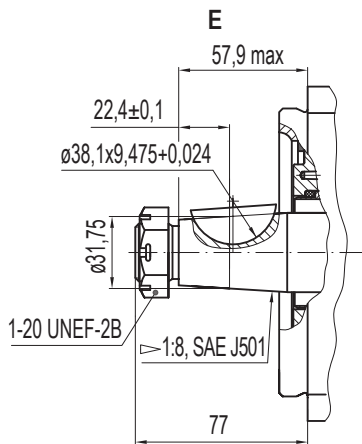
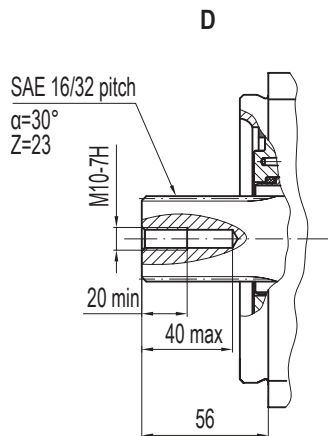
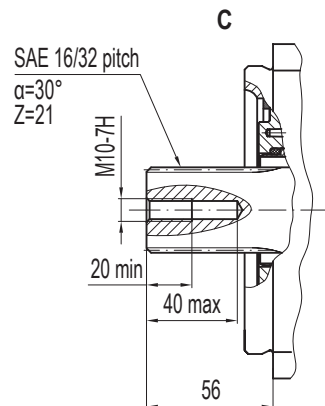
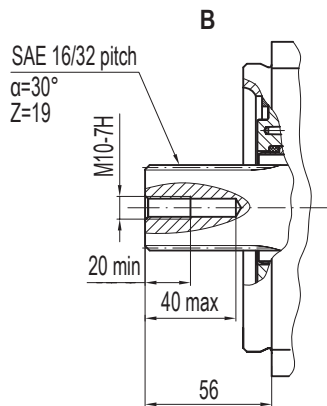
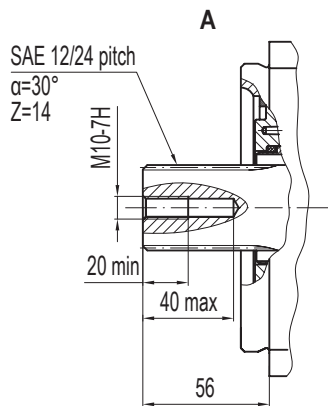
DRAIN PORTS SIZES

Frame size	«1»; «2»	«3»
SPVH33	7/8-14 UNF-2B	1 5/16-12UN-2B
SPVH52		
SPVH71		
SPVH90		
SPVH112		
Frame size	«4»; «5»; «6»	
SPVH33	7/16-20 UNF-2B	
SPVH52		
SPVH71		
SPVH90		
SPVH112		

PORT OPTIONS 'A' & 'B'

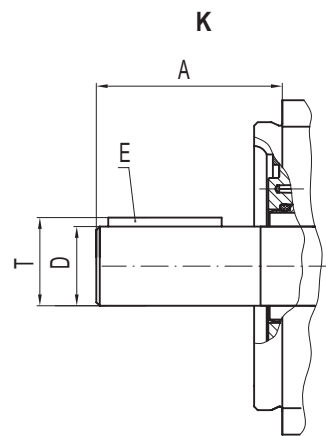
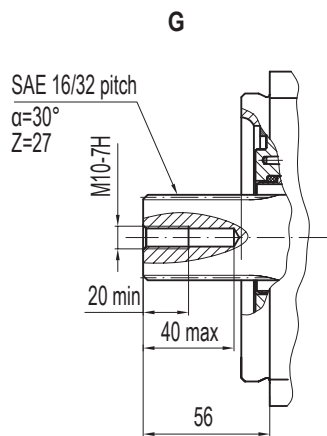


SHAFT OPTIONS



CYLINDRICAL SHAFTS, 'K' DESIGN

Frame Size	A	D
SPVH33/52/71	77 max	34,93
SPVH90/112	77 max	44,45
Frame Size	T	E
SPVH33/52/71	38,47	7,976x7,976x50
SPVH90/112	48,8	9,576x9,576x50



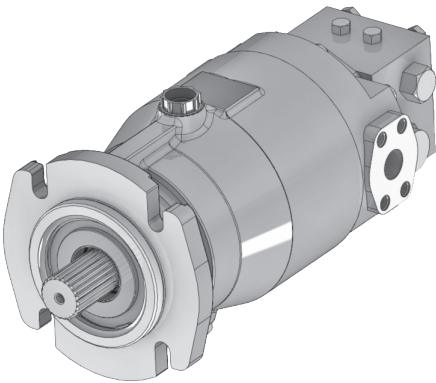


GENERAL INFORMATION

Fixed displacement axial piston motors in swashplate design for closed and open circuits. They are used in hydrostatic transmissions, that consist of a pump and hydraulic motor. The proven design, based on the Sauer 20 Series, is reliable and durable in the field. Built-in hydraulic equipment optional.

Design features:

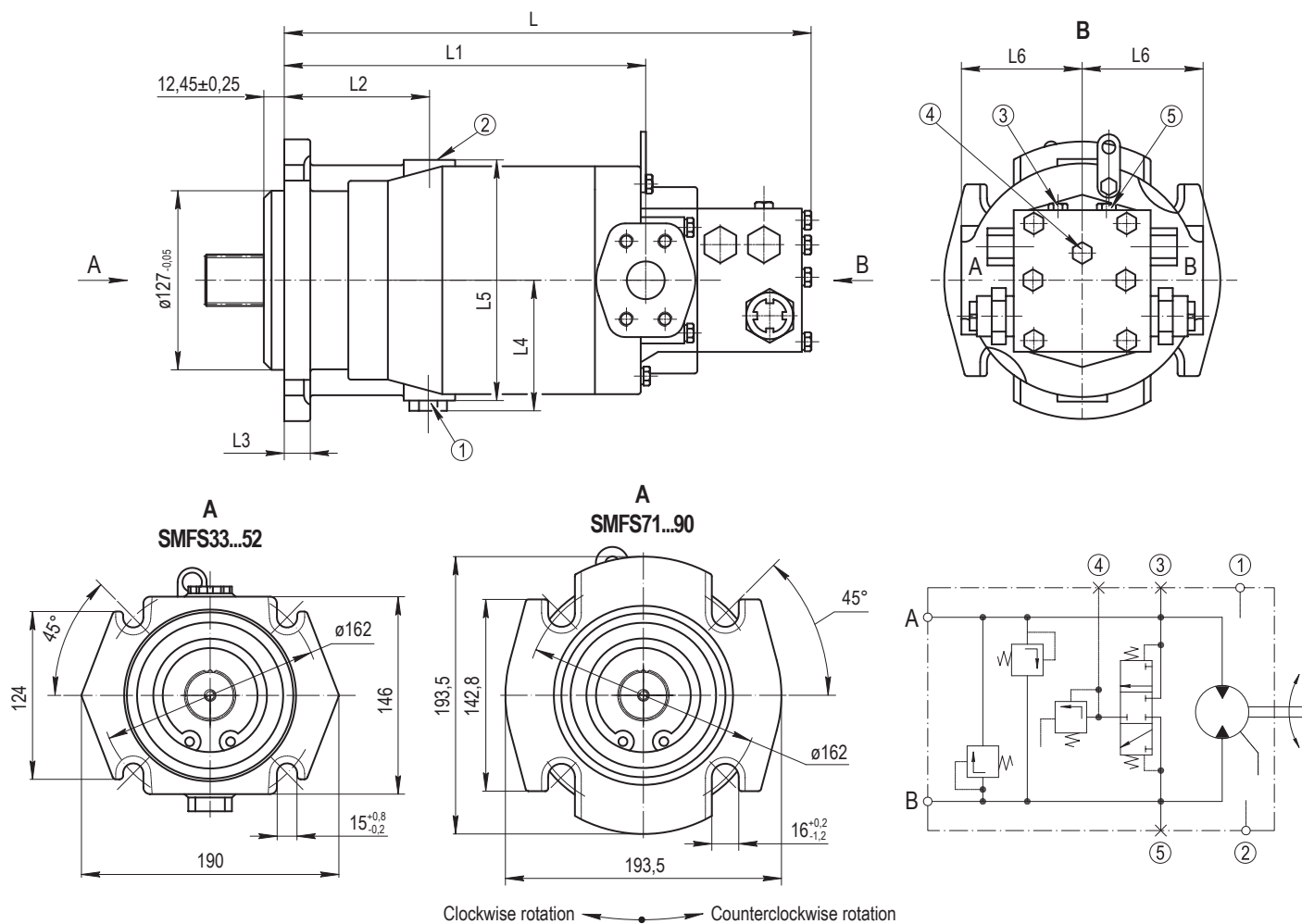
- Swashplate design.
- Bimetallic bearing plate has a high wear resistant.
- Lightweight plunger provides reliability in operation at high speeds.
- Tapered roller bearings allow the motor shaft to withstand high radial and axial loads. •
- Shaft seals (face seal or lip seal) provide reliable external tightness.
- Mounting flanges according to SAE.
- Built-in hydraulic equipment optional.



TECHNICAL CHARACTERISTICS

Displacement code		33	52	71	90
Displacement max	ccm	33,3	51,6	69,8	89
Maximum pressure in high pressure line	bar	420			
Rated pressure in high pressure line	bar	350			
Maximum drain pressure	bar	2,5			
Maximum speed	min ⁻¹	3590	3100	2800	2600
Minimum speed	min ⁻¹	50			
Rated speed	min ⁻¹	1500			
Rated power	kW	14,5	22,4	30,4	48,9
Weight (without fluid)	kg	30	35	40	47

OVERALL DIMENSIONS

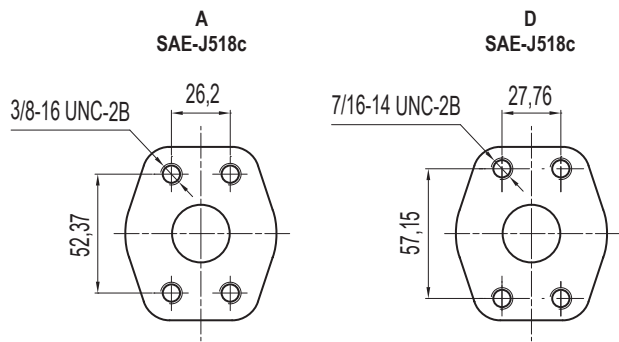


Frame size	Dimensions [mm]						
	L	L ₁	L ₂	L ₃	L ₄	L ₅	L ₆
SMFS33	340	216	90	16	82	140	81
SMFS52	360	235	96		87	152,7	85,8
SMFS71	378	255,6	97		98	174	
SMFS90	391	270	117,5	17,5	107	192	95,25

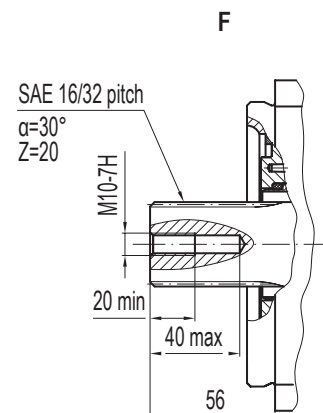
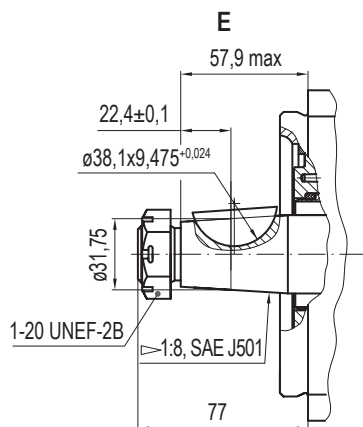
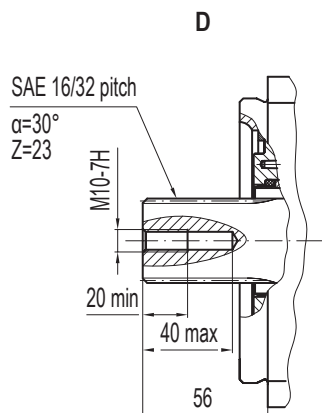
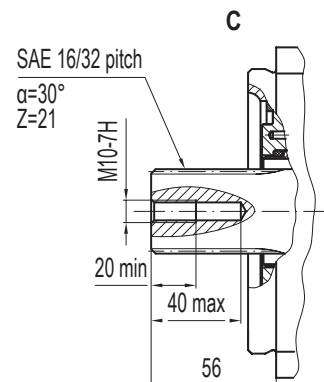
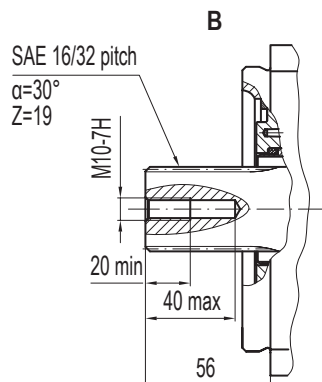
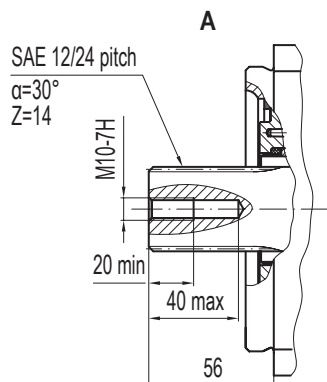


DRAIN PORTS SIZES

Frame size	Ports	
	«1»; «2»	«3»; «4»; «5»
SMFS33	7/8-14 UNF-2B	7/16-20 UNF-2B
SMFS52		
SMFS71		
SMFS90		

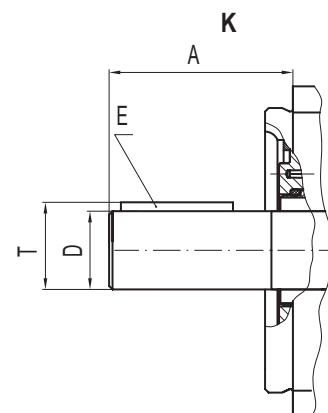
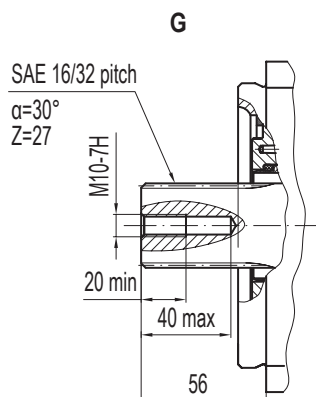


SHAFT OPTIONS



CYLINDRICAL SHAFTS, 'K' DESIGN

Frame size	A	D
SMFS71	77 max	34,93
SMFS90		44,45
Frame size	T	E
SMFS71	38,47	7,976x7,976x50
SMFS90	48,8	9,576x9,576x50



SAMER S.r.l.

C.da Molino 58/C -Campofilone FM -63828

Tel: +39 0734 340364 -06 30818297

Cell.+39 348 6937145